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Special Articles

THE EXAMINATION OF SPUTUM IN ONTARIO

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The physician whose lot it is to see any considerable number of phthisical patients soon realizes that but few patients are placed under suitable treatment at an early stage of the disease. This may or may not be the fault of the attending physician, and, with a wish to place the responsibility fairly, an analysis of fifty consecutive cases was made dealing with points which might throw some light upon this subject. Detailed analysis is given in table 1, and for the sake of convenience the number analyzed has been treated as one hundred cases instead of fifty. There has been inevitably some selection in these cases. They are derived from moderately well-to-do classes. Many have been treated for some time before being referred to me, and patients who did not have a reasonable possibility of improvement were not allowed to leave home.

Twenty per cent. only were early cases in a clinical sense, and even in these the actual duration of disease was upward of 3 years, while in the far advanced cases it was 6 years. Of the whole group the average duration of disease was 3 years and 8 months. The duration of actual disease was not much greater in the average case than in the insipients. The average length of the immediate illness was 9 months in the incipients and twice as long in the far advanced. Sputum was present before admission in 90 per cent. and had been examined in 78 per cent., i.e. in 87 per cent. of cases in which it was present. Bacilli had been found in 64 per cent. of cases before admission, and before or after admission in 74 per cent. of all cases. In 78 per cent. of the cases the finding of bacilli did not seem to be material to the making of a diagnosis, while in 18 per cent. it was of great importance. That is from the standpoint of diagnosis the search for bacilli as at present used is of great use only in one case out of five. The diagnosis was promptly made in 42 per cent. and could be criticized in 58. In 38 per cent. at least the physician was to blame. That is, in 2 out of 5 cases the doctor is to be commended, and in 2 out of 5 cases he is blameworthy. This criticism refers solely to the relation of the physician to the patient, and not to the duration of illness in any given case. A diagnosis may have been prompt, though the opportunity for making it may have come late. After diagnosis was made the treatment was good in 62 per cent., indifferent (which is really bad) in 16 per cent. and bad in 22 per cent. Of the 38 per cent. indifferent or badly-treated the doctor was responsible in 20

TABLE I.

An analysis of 50 cases (treated as 100), with special reference to the use of sputum examination.

No. of Cases	Condition on Admission: N. A. Class'n	Condition on Admission: Stage of disease after Turban	Aver'ge duration of disease (mo'ths)	Aver'ge length of present illness (mo'ths)	Sputum: Present before admission	Sputum: Examined before admission	Tubercle Bacilli: Before admission	Tubercle Bacilli: During residence	Kind of Diagnosis	Was this diagnosis a reasonable one without the finding of bacilli?	Treatment after the diagnosis of Tuberculosis	After diagnosis whom to blame for bad treatment? Patient	Physician
20	Incipient	St. I. 20 (1 lung 10, 2 lungs 10)	38.4	9 3	16 cases	10 cases	6	6 T. B. present in 8 cases	Prompt 16, Delayed 2, Negligent 2	Yes 14, No 2, Uncertain 4	Good 18, Indiff'r'nt 2	0, 2	0, 0
54	Moderately Advanc'd	St. I. 6, St. II. 28, St. III. 20	33.1	12	50 cases	48 cases	40	38 T. B. present in 40 cases	Prompt 20, Delayed 14, Negl'g'nt 20	Yes 42, No 12	Good 34, Indiff'r'nt 8, Bad 12	0, 6, 0	0, 2, 12
26	Far Advanc'd	St. III. 26	71.5	18.4	24 cases	20 cases	18	26 T. B. present in 26 cases	Prompt 6, Delayed 4, Negl'g'nt 16	Yes 22, No 4	Good 10, Indiff'r'nt 6, Bad 10	0, 6, 4	0, 0, 6
100	All Classes	St. I. 26, St. II. 28, St. III. 46	44.3	13.1	90 cases	78 cases	64	70 T. B. present in 74 cases	Prompt 42, Delayed 20, Negl'g'nt 38	Yes 78, No 18, Uncertain 4	Good 62, Indiff'r't 16, Bad 22	0, 14, 4	0, 2, 18

1. Duration of disease taken from the time when there were symptoms which, considered with history of possible exposure and the environment, might reasonably point to tuberculous infection.

2. Length of present illness includes the time of more or less continued illness which may reasonably be considered a part of the illness for which the patient comes under treatment.

TABLE II.

	Province of Ontario		Average Whole Province 47 registration districts	County Old Ontario 40 registration districts	ELGIN		OXFORD		ONTARIO		LEEDS & GRENVILLE	
Area (sq. miles)	260,862		5,550	1,000	720		764		852		1086	
Population (1911)	2,523,274		58,086	59,549	44,312		44,371		41,006		35,767	
Population per sq. mile	9.67		9.67	60	60.5		62		48.12		32.9	
Physicians (1912)	2,948		63	67	59		66		46		84	
	1909	1911	1909	1911	1909	1911	1909	1911	1909	1911	1909	1911
Sputum Examinations (+results) Prov. Board of Health	2,259 (+665)=29%	2,421 (+586)=24%	48(+14)	51 (+12)	12 (+3)	2 (+1)	50 +(10)	131 (+33)	13 (+5)	44 (+6)	78 (+31)	82 (+27)
No. Sputum Exam's per physician	.76	.82	.76	.80	.20	.03	.76	2.00	.28	.95	.93	.97
Deaths from Pulmon'ry Tubercul's	2.017	2,035	43	43	18	13	33	38	19	35	73	66
No. " " Pul. Tb. per physician	.68	.68	.68	.68	.30	.22	.50	.57	.41	74	.86	.78
Deaths, excepting children under 5 years, from Chronic Bronchitis, Asthma, Emphyssma, Broncho-pneumonia	574	644	12.2	13.7	16	13	19	19	7	18	7	18
Deaths from Pulmonary diseases other than Tuberculosis	3,032	3,083	64.5	65	65	45	70	61	68	58	65	64
" " " in children under 5	1,021	900	22	19		4	16	15	19	6	23	11
" from Tuberculosis (all forms)	2,380	2,353	50.6	50	11	26	37	43	23	42	86	82
Death rate from Tuberculosis	1.06	.92			28							
Death Rate in 1908 was 1.12 Rate for City 1.43, Town 1.17, Country 1.002												
Total No. of Deaths	32,628	34,341	694	730	527	505	566	629	511	559	785	764
General Death Rate	14.6	14.4										

per cent. and the patient in 18 per cent. After diagnosis then the doctor is responsible for bad treatment in 1 case out of 5. Pending diagnosis the treatment may in a number of cases have been unsafe, but this has not been scored against the physician. A good diagnosis may sometimes have been spoiled by indifferent advice afterward, but a negligent diagnosis is invariably associated with unsafe treatment before diagnosis.

Personal experience shows then that patients are placed under institutional treatment only after the immediate illness is already of long standing and the presence of disease of very long standing, that a minority only of diagnoses are promptly made, that as at present used the search for tubercle bacilli is largely confirmatory of diagnosis rather than diagnostic, that considerable laxity of management of a possibly serious condition obtains while a diagnosis is being reached and not infrequently afterwards.

In table 2 a number of miscellaneous data have been brought together with a wish to show the use made of sputum examination, to point out the neglect of this method of diagnosis and to suggest its possibilities.

Large numbers, while imposing, are often vague in practical suggestion, so the figures which apply to the province as a whole have been reduced to represent an average registration area or county in older Ontario. Also a number of counties selected from different parts of the province, which are fairly conformable to one another in point of size, population and proportion of urban to rural population, have been contrasted. Statistics for two years have been given, 1909 and 1911, for purpose of comparison, and because between these periods several municipalities have undertaken the examination of sputa apart from the provincial laboratories. The selection of these counties was not a matter of prejudice, as others were found as bad or worse than the worst, and some better possibly than the best. Mention of a greater number while of interest would only burden the inquiry.

On the average 4 out of 5 physicians send 1 specimen of sputum each to the provincial laboratory every year. In one county the average was as low as 1 specimen for 5 physicians in 1909 and 1 for 33 in 1911. A second county increased its average remarkably from 3 specimens for 4 physicians in 1909 to 2 specimens for each physician in 1911. A third county more than trebled its number of specimens, raising itself from an extremely low standing to a high one of nearly 1 specimen for each physician. A fourth district has a high, consistent average of nearly 1 specimen for each physician.

On the average, 2 deaths are recorded yearly for every 3 physicians. In one county there was but 1 death for 5 physicians. In this county, however, there were 7 deaths to 1 sputum examination for the same year, while the ratio of deaths from phthisis to deaths from other chronic pulmonary diseases was disproportionately low compared with other counties contrasted. In a second county the deaths were 1 for 2 physicians, but the sputum examinations were 4 times as numerous as the deaths. In a third county the deaths recorded were almost doubled in the 2 years, but the sputum examinations were more than trebled. In the fourth district the recorded deaths are consistent—4 for 5 physicians.

Only one-fourth of all specimens are recorded as positive. The proportion of positive cases to deaths, then, is only one fourth the ratios mentioned above. It seems, therefore, probable that in an obvious case no sputum examination is considered necessary. It has already been suggested, however, that most examinations are corroborative rather than truly diagnostic. Dr. Connell, Director of the Kingston branch of the Provincial Laboratory, writes that only 5 per cent. of the total examinations of that laboratory are for second examination, only 1 per cent. for third examination and only .13 per cent. for a fourth. Dr. Nasmith, Director of the Toronto Municipal Laboratory, finds that physicians seldom send a negative sputum in for a second examination. Most physicians, then, send only one or an occasional specimen, but there is a small number of habitual senders. A number of these latter are accustomed to send repeats of the same case, and a few send a great number of re-

peats. There are a few, therefore, who appreciate the best use of the laboratory.

Amongst other data in Table 2 are to be found the deaths from chronic or subacute pulmonary diseases, which might easily give rise to doubt in diagnosis. These average about one-third of the deaths from phthisis. In this group the portion of morbidity to mortality must be much greater than is the case in phthisis, so the number of suspicious cases for whom a series of examinations of sputa for bacilli must be desirable becomes very large. As children under five are excluded, this group of diseases will largely affect people who have at least reached middle age. In this connection it is worth noting that in recent years the death rate from phthisis is greatest at about 45 years of age (English Statistics). Differential diagnosis then becomes most difficult at the age of the greatest death rate from phthisis. A country practitioner writes that of 12 cases whose sputa he personally examined in a year 5 gave positive results, while 1 was a case of chronic bronchitis, 3 were cases of bronchial asthma and 3 of broncho-pneumonia.

The number of cases of active pulmonary tuberculosis for this province has been previously estimated at approximately 10,000, i.e., 5 times the number of deaths. Philip of Edinburgh, would double this ratio to include all cases who should be under medical supervision. Dividing the smaller number among the physicians of the province, each should have four cases consistently under treatment, some of whom should recover, and one should die every 18 months. For each case that dies one recovers,* so each physician should average a new case every nine months.

The finding of tubercle bacilli does not mean an early diagnosis, but it may happen to be the earliest that is possible, or at least practicable. The exclusion of phthisis is one of the most necessary precautions in diagnosis to be practised by all physicians, but it cannot be done thoroughly without the definite intention to make it as absolute as possible—and the repeated examination of sputum is necessary to effect this. The acceptance of the idea of the presence of tuberculosis in the body from relatively early childhood in four-fifths of all people emphasizes this necessity. The bacillus often long evades detection. I recall one case, seen in the service of Professor Osler, in which the sputum was examined upwards of 60 times before the bacillus was found, and another case is included in the series in Table 1, in which there were 20 negatives before a positive result. Apart from the diagnostic importance for the patient's sake, it is of moment for hygienic reasons that chronic phthisis should not be allowed to be regarded as chronic bronchitis.

Unfortunately, a negative report too often quiets the physician's anxiety about the diagnosis of the suspect, and after such a report both he and his patient enter a state of false security. This attitude toward negative reports must be fairly general else there would either be a greater proportion of positive findings or a much greater number of specimens sent in, and the proportion of second examinations would be higher than 5 per cent. The record of examinations of the Provincial Laboratories suggest, however, by the slowly increasing numbers with the lessening of positive cases that the sputa of more suspects are being sent in (Table 3).

The fact that physicians send in specimens which give negative results is in itself encouraging, but the importance of this fact is by no means appreciated by many of the senders. In a number of replies to inquiries about the use of the Provincial Laboratories captious criticism of the work done at the laboratories has been expressed, because the senders have received negative reports from seemingly undoubted cases. One physician sends "a good many, but seldom gets a positive report;" another writes that his fellow-physicians complain that they "have never yet received a positive diagnosis, though they have sent many specimens from undoubted cases," yet another writes "one is not much encouraged to send specimens as the report is nearly always the same—no bacilli—and I am sure specimens of which I have received reports have swarmed with T. B." Contrast with these criticisms the appreciation of the physician who speaks for more than 20 fellow-physicians in 6

* Importance of the so-called pretubercular stage. R. C. Paterson, "Tuberculosis," June, 1912.

Table III.

Sputum Examinations.

Provincial Board of Health Laboratories.*

Year.	Number.	Positive.	Negative.
1899....	629		
1900....	703		
1901....	1006		
1902....	1056	378	678
1903....	1153	371	782
1904....	1447	456	991
1905....	1870	601	1264
1906....	2254	*607	*1281
1907....	1957	534	1423
1908....	2214	601	1613
1909....	2259	665	1594
1910....	2721	729	1992
1911....	2421	586	1835

*Records of Toronto Laboratory only until 1905. After this date the records of the Kingston Laboratory are also included.

Table IV.

Inquiries regarding the examination of sputum.

From whom made.	Places.	Inquiries.	Replies.
Practitioner—			
Cities—Large.	1	6	3
" —Medium.	3	7	5
" —Small.	8	11	5
Towns.	8	8	6
Country.	11	11	6
	31	43	25
Hospitals—			
With internes 15.....	52	70	6
Without internes 55..			8
			14
Sanatoria.	9	9	9
Laboratories—			
Municipal.	3	3	3
Provincial.	3	3	3
	66	128	54

towns: "No one does his own examinations now, as the Kingston Laboratory has always given such good service; everyone takes advantage of free examinations at Kingston." The varying local spirit of physicians is very well shown in the county columns in Table II.

Since 1898 the Provincial Laboratory at Toronto has examined sputum for physicians free of charge, the branch laboratory at Kingston since 1904, and quite recently a branch laboratory at London has been instituted. Table III. shows the haste with which physicians in general have availed themselves of the advantages at hand. The reports of Dr. Amyott, the director of the laboratory, contain a series of laments about the little use made of the facilities offered. He says, "Either our practitioners are too busy, do not know of these facilities which are free to them—only asking to pay postage on the specimens—or else they have already begun to lose interest in their work, or are not doing their duty to their patients."

In 13 years the number sent has only quadrupled, 629 reports in 1899 have increased to 2,241 in 1911. Two cases a year probably enter the ranks of the tuberculous for each that dies, 1 to recover and 1 to die. There would then be 4,200 new active cases yearly. To get these relatively early each might require an average of 5 sputum examinations (by which all will not by any means be diagnosed). These would amount to 21,000 examinations. Half this number of examinations at least might reasonably be expected for differential diagnosis in many other pulmonary diseases. A total of 30,000 examinations yearly for the province would not be an extravagant ideal.

In New York City, Dr. Biggs reports that the sputum examinations have increased from 511 in 1894 to 41,820 in 1911. Enforced reporting of cases and facilities for easy collection of sputum have no doubt both been material in obtaining this result. If facilities in Ontario were used to the same extent in proportion to population there should be upwards of 20,000 specimens examined yearly. Initiative on the part of practitioners only is needed, and the recent provisions of the provincial health service, whereby containers in mailing cases are placed in each municipality, should lessen the inertia which has hitherto prevailed. The recent law on the reporting of cases should serve as some stimulus where apathy regarding professional standards and responsibilities exists. It is not at all unusual to learn from the patient the examination of his sputum was undertaken only at his own urgent request. A remarkable instance, included in the series

of cases in Table I. was that of a patient who had had sputum 7 months. Between Easter and Midsummer he was examined by four physicians with a negative diagnosis; none suggested the examination of sputum, so the patient sent a specimen to the Provincial Laboratory himself with a positive result.

In order to gain some idea of how many examinations of sputum are made in the province apart from those made at the Provincial Laboratories at Toronto, Kingston and London, an inquiry was sent to the superintendents of the 70 hospitals, to the superintendents of the 9 sanatoria, to the directors of the municipal laboratories of Toronto, Ottawa and Hamilton, and to 43 physicians practising in 31 different places. Twenty-five replies from practitioners were received, six of which alone gave intimate information concerning more than 10 other practitioners.

Replies received from 14 hospital superintendents suggest that with the exception of several general hospitals in Toronto, Ottawa, Hamilton, London and St. Catharines, no considerable number of sputum examinations is made for diagnosis or for the convenience of physicians at the hospitals. Only those hospitals which employ internes are likely to make any examinations, and there are only 15 of these hospitals in the province.

Information from nine sanatoria suggests that examinations of sputum for diagnosis are seldom desired or made. Many specimens are of course examined in following the progress of cases. Few, however, of the cases admitted require examination for diagnois.

In the one large city of the province figures obtainable show that there are probably upwards of 1,600 examinations made annually, apart from the few still made for the city by the Provincial Laboratory. Three hundred of these are made at hospitals. Since the city began to make examinations, and provided facilities for the collection of specimens, 26 months ago, the examinations for this city at the Provincial Laboratory have been greatly reduced, and it is probable that examinations are also less numerous in the laboratories of hospitals of the University, and of physicians. The city laboratory reports 1,239 cases for 1912, which may be compared with 550 made for the city in 1910 by the Provincial Laboratory, before the city laboratory was instituted.

In the three medium-sized cities comparatively few physicians use the Provincial Laboratories, about one-half use the facilities provided by the hospitals to some extent, about 10 per cent. only do their own work and 40 per cent. do not use any means of examination. The Provincial Laboratories record so few examinations from this group and the obtainable hospital records show so few (30 for a year in a city of 50,000) that it seems probable a fair number of examinations must be made in private laboratories.

In the smaller cities (replies from 5) the hospitals are only used occasionally. In an occasional place there is a special examiner (a chemist in one city), less than 20 per cent. of practitioners have facilities for doing their own work, but only a small proportion of these use them, and the Provincial Laboratories are fairly used in some cities, and but little in others. About 33 per cent. of physicians do not use any means of examination.

In six towns the procedure is extremely variable. A majority of physicians fail to have any examinations made. In two the Provincial Laboratory is used entirely and freely by all practitioners. In four one-sixth to one-half do their own work to some extent.

In five villages practitioners use the Provincial Laboratories entirely. In one village one practitioner does his own work, another uses the Provincial Laboratory and three make no use of any means of examination.

On summarizing the various letters received, one is forced to the conclusion that of the 3,000 practitioners in the province barely one-half make any consistent use of the facilities provided, and while 10 per cent. may possibly have equipment for doing microscopical work themselves, not more than one-half of these do it at all consistently.

Most practitioners who have their own equipment lament the difficulties that a

busy practice puts in the way of making examinations consistently, and find that their laboratories fall into disuse because they have not the time to keep them efficient. It is interesting to note, however, that the greatest enthusiasm for doing one's own microscopical work comes from a busy country practitioner, no longer young, who uses laboratory methods extensively and examines specimens from at lease a dozen patients a year. He uses efficient and sometimes unusual staining methods. He fails to see how any doctor can do justice to himself and his patient without a laboratory and thinks none should be too busy to use it. It is encouraging to note that some physicians make many examinations themselves. One records 80 and another 20.

When an estimate is made of the probable total number of examinations made in the province besides those of the Provincial Laboratories the result is, however, both gratifying and surprising. The following figures may be fairly taken:

Toronto—		
City laboratory (1912)	1239	
Hospitals—General (1912)	249	
" —Victoria (1911)	15	
" —Western (1911)	50	
		1553
Ottawa—		
Board of Health (1911)	40	
Lady Grey Hospital (1911)	10	
		50
Hamilton—		
Board of Health (1911)	328	
Tuberculosis Dispensary (1911)	18	
		346
London—		
Victoria Hospital (1911)		30
St. Catharines—		
General and Marine Hospital (1911)		50
St. Thomas—		
Special Examiner (1911)		50
Peterboro—		
Medical Officer of Health (1911)		12
		2791
Practitioners—		
5% of 3,000, 150 average 10 specimens each		1500
		4291
Provincial Laboratories (1911)		2421
		6712

It is a generation since the tubercle bacillus was discovered and shown to be easily demonstrable for diagnosis. It is half a generation since the sanatorium movement was inaugurated in Canada. The success of sanatorium methods in the treatment of tuberculosis has been thoroughly proven, but the proportion of success to be obtained depends directly upon the limitation of disease, and this again upon early diagnosis. Special training and facility may be largely necessary to demonstrate an early lesion by physical examination. Relatively early cases may, however, be frequently discovered by the prompt and consistent examination of sputum. Alertness and conscientiousness alone are necessary to use the facilities at hand. The proper use of sputum examination is a practicable measure, which every physician can employ to-day in the great campaign against tuberculosis.

TUBERCULOSIS IN TORONTO

By EUNICE H. DYKE

A paper read at the Ontario Health Officers' Association, Parliament Buildings, Toronto.

Before planning this paper, I wrote to the Medical Officers of Health of the larger Ontario cities, asking for information regarding their tuberculosis visiting nurses. In every case, I was referred to a voluntary agency for information, from which fact I conclude that the Medical Officers of Health in Ontario have not yet appreciated the value of the Public Health Nurse as an assistant. It, therefore, becomes necessary to place before you a few of the results of the past two years' work of the Division of Tuberculosis in Toronto. As this work has been along preventive lines and deals with a disease which kills at long range, it is impossible to demonstrate so soon any unusual reduction in the death rate.

The following conclusions regarding the control of tuberculosis in Toronto are drawn from a study of 2,272 cases visited and recorded by the Public Health Nurses during the past two years:—

1. A satisfactory reduction in the death rate will follow increased vigilance on the part of the immigration authorities. The nationality has been recorded in 351 of the deaths occurring amongst patients visited by our nurses. (The number of deaths in which the nationality was not recorded is 107). Of the 351 cases, 197 were foreign, 154 of which were from Great Britain and 105 from England alone. Less than 44 per cent. were Canadian. According to the figures of the Dominion Immigration branch in Toronto, about 23,000 immigrants settled in Toronto last year and about 90,000 in Ontario. Our experience has been that many of these families come to Canada on the advice of a physician and that the visiting nurse is the one in the best position to discover these facts.

Close co-operation between the private physician and the Department of Health is essential to the control of tuberculosis. The dispensary watches many needy patients, maintains a standard of clinical diagnosis, and undoubtedly provides excellent study material for students, but it cannot reach the tuberculosis home. Of the 2,272 cases recorded in Toronto—a number which includes all patients attending dispensaries and only an unknown percentage of physicians' cases—97 had no medical supervision, 1,019 were at some time under the supervision of dispensaries and 1,156 were under the supervision of private physicians throughout the entire illness. Most dispensary cases are at some time treated by the regular practitioner. In addition to these needy homes the physicians have recorded 309 patients not requiring Health Department assistance, and 99 such cases have become known in other ways. In Toronto, most of the tuberculosis, even in the homes of the poor, has been handled by the private physician, and the Public Health Nurses have appreciated the fact that they have been so frequently asked to assist in the management of the cases.

3. The sanatorium, though a powerful educative factor in the tuberculosis campaign, cannot become the organizing centre. All sanatorium cases are recorded by the Department, but of the 2,272 cases visited by the nurses, only 781 had the advantage of sanatorium care, and that for an average of about three months. The majority of these cases were known to the Department previous to admission and all were under its supervision after discharge.

4. Notification of tuberculosis can be accomplished only by persistent watchfulness on the part of the Public Health Nurse. Previous to May, 1911, when the nursing work was organized, three physicians had reported cases. In May, 1913, 281 physicians have reported 1,202 cases, with 102 duplicates. The classification is as follows:

Advanced	361
Moderately advanced	449
Incipient	283
Not classified	190
Arrested	21
Reported for supervision	893
No supervision necessary	309
Reported by physicians	870
Reported by dispensaries	332

One hundred and thirty-five physicians who are known to have treated positive pulmonary cases have not yet reported one case; 868 cases have been reported first by nurses and others not qualified to make a diagnosis; 131 of these cases were later reported by physicians, and 344 are still waiting diagnosis.

5 The unit in health work is the family rather than the individual. The agent best capable of focusing all forms of medical and social work upon the tuberculosis home, and so preventing the development of contact cases, is the visiting nurse, working under the Medical Officer of Health. The number of families at present under the supervision of the Division of Tuberculosis in Toronto is about 1,200. A few of the patients have not yet consented to medical supervision and many are not yet registered—we hope will never reach a stage when a diagnosis will be possible. The nurse working under a voluntary agency can visit only those patients seeking dispensary aid.

6. If the work of a Department of Health repressed the work of the voluntary agencies it is doubtful whether it would be of permanent value. The story of the past two years in Toronto indicates that voluntary work is not repressed.

May 1911, showed:	
Sanatorium accommodation for Toronto patients	153
Island Preventorium	25
Dispensaries—3 clinics a week, with an average attendance of about	6
May, 1913, shows:	
Sanatorium accommodation for Toronto patients	270
Island Preventorium	50
Daughters of the Empire Preventorium	10
Forest School	100
Dispensaries—6 clinics a week, with Department of Health nurses in charge and with an average attendance of about	15

Owing to the policy of the department in regard to relief, it is impossible to state in figures the increase in the social and relief work. No effort has been made to organize special relief committees in the belief that such agencies duplicate work, and, as a rule, do not accomplish the best constructive work. Every tuberculosis home presenting a social problem has been referred to agencies or individuals having a previous knowledge of the home. This is a phase of tuberculosis work in which the socially trained nurse is indispensable if the work is to be other than superficial.

To sum up our experiments in Toronto: The Department of Health must become the organizing centre in the tuberculosis campaign, because, in the public health nurse it has an agent capable of bringing about notification of tuberculosis and of securing co-operation of the private physician, dispensary and sanatorium, and able to utilize authority in the home when necessary, or to secure the assistance of social and relief agencies.

Many authorities in public health administration, amongst them Dr. C. E. A. Winslow, Curator of Public Health, American Museum of Natural History, New York, and Professor M. Adelaide Nutting, Director Department of Nursing and Public Health, Teachers' College, Columbia University, have stated that the public health nurse is the strategic point in all health campaigns. She carries on intensive educational work, co-ordinates the work of other agencies in order to solve the problem of the individual home and, daily, in the regular course of her work, secures statistics which, if properly recorded, are invaluable to health officers and legislators. If Ontario wishes the assistance of nurses in the field of preventive medicine, the Medical Officers of Health must go into the training schools of the province and teach the superintendents and pupil nurses the need of "health" nurses as well as "sick" nurses, and train them to meet the need. Such training will naturally include courses in sanitation, food inspection, housing inspection, district nursing and charity organization.

Tuberculosis visiting nursing has been organized in the rural districts of Wiscon-

sin, New York and Ohio, but in all these states the work of organization has been started by private philanthrophy. It has remained for Nova Scotia to initiate organized rural nursing as a part of the provincial tuberculosis work. The proposed rural nursing under the National Red Cross in the United States seems to be a similar movement along broader health lines.

The principal of local sanatoria is generally accepted in Ontario along with the need of local supervision, local educative campaigns and local relief, and the nurse is a part of all this work. The Medical Officer of Health is paid by his municipality and is appointed by it and is yet responsible to the Provincial Officer. If he requires the support that a provincial organization gives, is it less necessary for the nurse? The nurse would be no less the assistant of local agencies should she act under the authority of a provincial agency. The subject of the organization of tuberculosis nurses in Ontario is one which I ask the association to consider thoughtfully as a means of securing efficient local work.

In Ontario, though I have been unable to secure definite information, I believe many nurses are doing tuberculosis visiting nursing under the Victorian Order, anti-tuberculosis leagues, sanatoria and dispensaries. Private philanthropy has always pointed the way, but it should not be an obstacle to organization. In New York State the salaries of the co-operating nurses are paid by various local agencies, but supervision is maintained by the Committee on the Prevention of Tuberculosis, under the State Charities Aid Association. Provincial organization and supervision in Ontario would secure uniform standards and records, provide for the transfer of a patient's record when he moves and make it possible to take advantage of all available sanatorium accommodation. It is difficult to discuss the details of a provincial organization with the slight knowledge I possess of rural nursing. Imagination suggests, however, that even in the smaller towns a part at least of the nurse's salary could be paid from public funds, that she could be assigned an office and a regular office hour in a public health building where messages might be received and that record forms might be provided by the provincial organization. It is possible that the public health nurse of the rural community need not specialize in tuberculosis, infant hygiene and school nursing, as she has been compelled to do in cities, but that she may become a general assistant to the Medical Officer of Health in school and home inspection, helping him to reduce typhoid, tuberculosis and infant mortality—in some districts acting as truant officer and inspector for the Children's Aid Society.

The tuberculosis nurse must ultimately develop into the public health nurse since the conditions which prevent tuberculosis are the conditions which maintain health. The public health nurse will remain when tuberculosis is a matter of history.

THREE RULES

I Think the Best of People.

I Report the Best of People.

I Forget the Bad.

THE PUBLIC HEALTH ACT OF ONTARIO

DR. JOHN W. S. McCULLOUGH

Chief Officer of Health, Ontario

Read at the Meeting of Canadian Medical Association, London, June 25th, 1913.

The most important new features of the Ontario Act revised last year are:

(1) The provision whereby the province is divided into districts, each with a trained medical officer. There are seven of these. Each officer gives all his time to sanitary work within his district.

(2) The reduction in the numbers of members of the local boards, there being five members for places of 4,000 population and upwards, and three members for places of smaller population, including the townships. The Medical Officer of Health is a member of the Board, and its executive officer.

(3) The tenure of office of the Medical Officer of Health is made permanent. This official cannot be dismissed except for cause and with the consent of the Provincial Board. He must be paid a reasonable salary. Provision is made whereby the municipality pays his expense for attendance at the annual conference of health officers. This year about 300 were in attendance.

(4) The medical and surgical attendance upon indigents cannot in future be saddled upon the practitioners of a community. The council is required to provide for this.

(5) The period given to report communicable disease has been shortened to 12 hours instead of 24. Measles and tuberculosis are made placardable diseases.

(6) Isolation hospitals are placed directly under the control of local Boards of Health and arbitration is provided in case of dispute as to their location outside the municipality.

(7) The onus of placarding premises for communicable disease is placed directly upon the Medical Officer of Health.

(8) Under the regulations the Medical Officer of Health has power to commit a tuberculosis patient in a hospital or sanatorium under certain circumstances.

(9) Power is given to a municipality to regulate and inspect its meat supply.

(10) Perhaps as important a part of the Act as any is that relating to the establishment of water works and sewerage systems. Neither of these may be begun without the approval of the Provincial Board, and under certain circumstances the Board has power to order a municipality to establish a water supply or sewage disposal system.

(11) For the first time in the history of the province, a sanitary engineer has been appointed under the Provincial Board.

The reports of communicable diseases and births and deaths made by the medical profession are very incomplete. The importance of this question cannot be denied. Some medical men claim they should be paid a fee for such reports. The Ontario Health Officers' Association recently passed a resolution asking the Government to pass legislation requiring a fee of 50 cents for each report of a communicable disease, a birth or a death. This question should, in my opinion, be freely discussed here. All I have to say about it is this: that the members of the profession will in the future be required to obey the law. So, if they believe themselves entitled to a fee for such reports, they will get it only by making their influence felt in the same manner as other organizations do. If they follow their usual business tactics and wait for Providence to help them they will get no more recognition than at present. These remarks are made with a view to provoking discussion.

TRACHOMA

A Chapter in Military Medicine.

By H. F. LECHMERE TAYLOR, M.D., PUNJAB

The modern history of Trachoma in Europe dates from the time of the Napoleonic campaigns in Egypt. The English and French troops engaged in those campaigns suffered severely from an epidemic form of eye disease, which, on their return, they disseminated, not only in the garrison towns in which they were quartered, but also through the civil population of their native countries. The name commonly applied to it at the time, the "Egyptian Ophthalmia," sufficiently indicates its origin.

Napoleon landed in Egypt on July 1st, 1798, with an army of 35.000 men. Within three weeks his troops were attacked by foes more deadly and more obstinate than those they had already faced and overthrown on the battlefield. Plague, dysentery, scurvy and sun-stroke accounted for more deaths, "but Trachoma, the Egyptian Ophthalmia, was especially fatal to their efficiency as a fighting force." (Boldt, p. 9.) The disease spread with extraordinary rapidity through the army, and several special ophthalmic hospitals had to be erected, through which thousands of patients were passed. Though much of the disease appears to have been of a mild character, and the French surgeons, as we shall see, claimed remarkable success in their treatment of it, it is unquestionable that much permanent loss of sight resulted. Exact figures are difficult to obtain, but Sir James McGregor, in his "Medical Sketches," writes that the French, it was said, sent home from Egypt to France 1,000 blind men." (Page 147.)

Larrey, in his "Memoirs," states that in the latter months of 1798 "almost every one" suffered, while in 1799 the army was almost exempt from the disease. This he attributes to the hardships and desert marches of the former period, chiefly to the lack of overcoats and sufficient warm covering for night bivouacs. After the defeat of March 21, 1801, the labors of entrenching, combined with night chills, augmented by the flooding of a neighboring lake, made the disease again very prevalent: "in the space of two and a half months more than 3,000 men passed through hospital." (P. 218.)

His opinion as to the cause of the epidemic is found in the following words: "La chaleur brulante du jour, la refraction des rayons du soleil par la blancheur des corps repandus sur le sol de l'Egypte, ee qui fatigue et irrite les parties sensibles de l'oeil, l'usage immodere des liqueurs spiritueuses et des femmes, la poussiere entrainee par l'air, laquelle s'engage dans l'interieur des paupieres et determine sur le globe une plus ou moins grande irritation, surtout la suppression de la transpiration coutenare par le passage subit du chaud au froid, l'humidate et la fraicheur des nuits pour les militaires qui bivouaquent; telles sont les principales causes de l'ophthalmie." (P. 208.)

In this opinion he is supported by Assalini, Bruant, Savaresi, other French surgeons, not one of whom seems to have contemplated the possibility of the condition being a contagious one, propagated by contact, and social and domestic intercourse.

The English troops suffered as severely as the French. At Ghizeh and elsewhere several large hospitals were established for the treatment of ophthalmia, and McGregor reports that from those regiments alone which joined the expedition from India no less than fifty men were invalided home with blindness. ("Medical Sketches," p. 147.)

The disease not only raged amongst the troops in Egypt, but was carried by them to the various stations touched at on their way home, and spread with alarming rapidity in the barracks and garrison towns of England, Scotland and Ireland, and thence to the civil population. The disease thus suddenly and prominently brought under the notice of English surgeons was studied by them with the most observant and painstaking care; and they

"were undeniably the first to draw attention to the fact that Egyptian Ophthalmia is contagious and produces quite specific tissue changes in the conjunctiva." (Boldt, p. 11.)

The credit of first elaborating a proof of the doctrine of contagiousness undoubtedly belongs to Arthur Edmonston, who, in 1802, published a pamphlet entitled, "An account of the Ophthalmia in the 2nd Regiment of Argyllshire Fencibles;" this he incorporated in his "Treatise on the Varieties and Consequences of Ophthalmia." (Edinburgh, 1806.)

His argument rests largely on the facts relating to the Argyllshire Fencibles. The regiment was embarked at Gibraltar on January 29, 1802, "in a healthy state" on board the troopship Delft, which had brought the Guards from Egypt. The latter were transhipped there on account of "the sickly state of the Delft," the prevailing diseases on board being fever and ophthalmia. When the Fencibles were put on board she had lain for two months at Gibraltar and during that period "was frequently washed and fumigated." It is particularly to be noted, however, that one of the lieutenants of the ship "had lost the sight of an eye in Egypt from Ophthalmia and at that time labored under the disease;" also that though new bedding was provided, "the hammocks in which they lay, except a few appropriated for the use of the sick, had all been occupied by the Guards." The Delft arrived at Spithead, February 21st, and lay in quarantine for seven days, the troops disembarking on the 28th. "One case of Ophthalmia occurred ten days, and six other cases seven days before the landing of the regiment." During the next ten days twenty-one cases occurred, and up to the end of July, when the regiment was disbanded, "several hundred individuals had been seized with it." After discussing all possible and reputed causes, Edmonston rejects them all in favor of "the operation of a specific contagion imported from Egypt."

Other English observers, besides Edmonston, had been impressed with the evidence in favor of the presence of a contagium vivum. Thus, for example, Sir James McGregor, who does not seem to have seen Edmonston's pamphlet, in his "Medical Sketches of the Expedition to Egypt from India," published in 1804, discusses the possible contagiousness of Ophthalmia and remarks, "so singular an opinion I would hesitate to offer on slender grounds." (P. 148.)

The most interesting and important observations of that period, however, were undoubtedly those of John Vetch, who, in 1807, published "An account of the Ophthalmia which has appeared in England since the return of the British Army from Egypt," and later in his "Practical Treatise on the Diseases of the Eye" (London, 1820) dealt fully with the question in all its aspects. While giving Edmonston the credit of having first pointed out the contagiousness of the Egyptian Ophthalmia, he claims that he was the first to prove that "the communication of the disease was exclusively produced by the application of the discharge from the eyes of the diseased to those of the healthy." (Treatise, p. 179.) His conclusions were based chiefly on the facts relating to the 2nd Battalion of the 52nd Regiment, the history of which, as related by himself, is as follows:

The battalion was formed in November, 1804, at Bambury in Oxfordshire by a draught of men and officers from the 1st Battalion. It moved to Newbury in Berkshire, where it received about 80 recruits, chiefly from the Army of Reserve. Thence it marched to Hythe, where, on June 9th, 1805, it was joined by 500 volunteers from the Irish Militia. The first case of Opthalmia occurred about July 14th, and about a month later five more men were affected. "These cases did not attract attention as presenting anything in appearance different from Ophthalmia arising from the usual exciting causes, excepting the little benefit they derived from the mode of treatment resorted to, and the length of time to which they were protracted." (Account, p. 7.) The first violent case occurred on August 30th, and then the disease spread rapidly, so much so that from that time up to August of the following year 636 cases occurred out of a total strength of somewhat over 700; 50 men were dismissed with the loss of sight in both eyes, 40 with that of one.

On investigation, Vetch ascertained that the regiments which had returned from Egypt to Ireland had been quartered along with the militia and "the infection

appears, from such evidence as I have been able to obtain, to have been communicated to them." (Treatise, p. 181.) It was from militia regiments in which Ophthalmia had prevailed in Ireland that the draughts were taken for the 52nd, and on enquiry Vetch found that the men first afflicted in the latter had formerly suffered in Ireland. (Account, p. 6) The long period which elapsed between the return of the troops from Egypt and the breaking out of the disease in the regiment in question is explained by the fact, the anatomical basis of which Vetch alone, amongst early writers, seems clearly to have grasped, that "long after the eye seems to have recovered its natural and healthy appearance, the complaint nevertheless exists, and is liable at all times to a renewal of its infective quality. . . . If in a single case a renovation of the infectious discharge takes place the crowded state of soldier in barracks, and the free intercourse subsisting among men so situated, render its communication almost a necessity." (Treatise, p. 185.)

"Many men who remained free from the disease, after it had affected all the others in the rooms to which they belonged, were in the habit of rather allowing themselves to remain dirty than make use of the barrack towel, and always took an opportunity of washing at such a distance as to prevent the possibility of local contamination." (Account, pp. 1, 11, 12.)

We turn now to a consideration of the question, What really was Egyptian Ophthalmia? Was it a single disease, or a number of diseases not sufficiently differentiated by the observers? If the former, was it Trachoma? If the latter, What part did Trachoma play in it? Though no answer can be given to these questions with positive assurance, a study of contemporary records sheds enough light on the subject to afford a reasonable degree of certainty. Several facts stand out clearly. There can be no doubt, for example, that the disorder was epidemic in nature; even the French physicians acknowledge that. Again, it is clear that in severity it was by no means uniform; and the printed accounts reveal considerable differences as regards symptoms, course, sequelae and results of treatment.

That many of the cases were mild in character, short-lived in duration, and almost innocuous as regards consequences, seems evident from the success in treatment obtained. Thus Larrey, after giving in detail the measures adopted by himself, remarks "il en est resulte que, sur trois mille et quelques ophthalmies, il n'y en a pas en un seul qui ait perdu la vue." Assalini claims a similar result in over 2,000 patients who passed through his hands, and says that, after his regime had been adopted in the English hospitals, equally good results were obtained in them.

Edmonston, again, records that of the several hundred cases which occurred in the Argyllshire Fencibles "in not a single instance was it fatal to vision." (Treatise, p. 23.)

We may take it, then, as sufficiently proved that one element at least in "the Egyptian Ophthalmia" was as epidemic catarrhal conjunctivitis, originated perhaps by climatic conditions, propagated by contact, excessive crowding together of men, yielding readily to treatment, and in most cases doing little permanent injury to the eye.

This cannot, however, by itself explain all the phenomena. Something else much more serious was also at work. This is evidenced by the large amount of blindness, absolute or partial, that resulted.

Moreover, many of the symptoms described by the authors of the time are much more serious than those found in catarrhal conditions. A consideration of these is so strongly suggestive of gonorrhoeal conjunctivitis that we cannot avoid the conclusion that infection played a very large part in the disease. Vetch lays great stress on the purulency of the discharge as a diagnostic feature. "The symptom," he says, "which above all others is characteristic of the disease is the formation of a purulent matter," and this discharge, he adds, "stained the linen of the patient in the same way as the matter from gonorrhoea." (Account, pp. 32, 53.) Both he and Edmonston, however, maintained that the two conditions were totally distinct and could be differentiated clinically. Vetch maintained that they "differed essentially, both in symptoms and termination." Edmonston remarks that "the two affections have no kind of similarity," though the distinguishing signs as he describes them are not very

convincing; in gonorrhoeal Opthalmia the discharge is described as "from its commencement thick in its consistence of a greenish color exactly resembling the ichor of the urethra," while that in Egyptian Ophthalmia "comes on rather gradually, is for several days thin and pale colored." The other distinguishing feature noted is that in the gonorrhoeal condition the loss of sight occurs early, in the other it is "the effect only of a long continued disease." Perforating ulcers and rupture of cornea, often with total destruction of the globe, are mentioned by all the writers as common occurrences, points which at once rule many of the Egyptian cases into the gonorrhoeal category.

It should be noted in this connection that the connection between urethral gonorrhoea and gonorrhoeal Ophthalmia was by no means understood at that period. Both the writers referred to, for example, are firmly convinced that the eye cannot be infected from urethral discharge in the same person, though the eye of another person may be infected; both distinguish clinically a gonorrhoeal Ophthalmia contracted from infection from another person, from that occurring in the same person due to suppression of the urethral discharge, metastasis or sympathy. Vetch relates some experiments made by applying the discharge from eyes affected with Egyptian Ophthalmia to the urethrae of the same persons with negative results; and these he considers as corroborative of his views regarding the immunity of the eyes from the gonorrhoeal discharge of the same person. In one case, however, the discharge was applied to another person with the result that "purulent inflammation commenced in 36 hours afterwards, and became, with the addition of more tumefaction of the glans penis than usually occurs in violent gonorrhoea, a very severe attack of that disease"—(Treatise, p. 242)—an example we may employ to prove the fact that some cases of Egyptian Ophthalmia were gonorrhoeal.

Larrey suggested the dependence of Egyptian Ophthalmia on a gonorrhoeal infection, attributing it, however, not to infection, but to a sudden suppression of the urethral discharge, of which he actually recommends the re-establishment by inoculating a new gonorrhoea or injecting an alkaline lotion, "la quelle peut supplier a l'inoculation naturelle."

James Ware, in his "Chirurgical Observations relative to the Eye" (2nd Edit., 1805), speaks of having seen gonorrhoeal ophthalmia in persons "entirely free of any venereal taint" and adds in a footnote: "The Ophthalmia that deprived of their sight a considerable number of our brave soldiers in Egypt during the campaign in 1801, and which is said to be endemic in that country, appears to have been of this nature." (P. 31.)

Lastly, we find Mackenzie, in his "Practical Treatise on the Diseases of the Eye" (4th Ed.) so impressed with the great resemblance between the two diseases as to state that the "symptoms of gonorrhoeal Ophthalmia by inoculation bear so close a resemblance to those of the Egyptian Ophthalmia that it is unnecessary to detail them." As to diagnosis, he says that "there are no marks which can be absolutely depended on, by which to distinguish gonorrhoeal Ophthalmia, produced by inoculation, from the Egyptian or contagious Ophthalmia," and as to treatment that it "ought to be exactly the same as in the Egyptian Ophthalmia."

That a gonorrhoeal infection played its part in the disease in question seems abundantly clear.

It now remains to enquire into the ground of the common belief in the connection between the Egyptian Ophthalmia and Trachoma.

The most obvious feature of Trachoma, as we see it now, is the presence of "granulations" on the mucous membranes of the lids, and it is with not a little surprise that one seeks in vain through the contemporary authors, with one notable exception, for any description of what seems so essential and easily noted a fact. The exception is John Vetch, clarum et venerabile nomen in the history of Trachoma. After describing the early inflammatory symptoms, he points out that when the swelling of the lids has somewhat subsided and examination is possible, the inner surface "over its whole extent presents the appearance of granulations," a term the use of which in this connection we owe to him. He notes that this condition is more marked in the upper, but more persistent in the lower lid, and also that the "adnata" of the globe

"presents an appearance very similar to the florid red granulations of the palpebrae, disposed in a variety of folds and doublings, resembling more the valvulae conniventes of the small intestine injected with vermilion than anything else to which I can compare it." (Account, pp. 54, 56.) This condition of the lids, he says, in some cases "disappears rapidly and of itself" (Treatise, p. 202), while in others, instead of subsiding it acquires "either by the operation of new sources of irritation, or from a morbid obstinacy in the part itself, a farther increase of size, so as to produce a rough, scabrous, or granulated surface, with a secretion of purulent matter," a condition often leading to "opaque cornea" (pannus, op. cit., p. 67). He points out that the granulations when cut away are reproduced, and that the opacity of the cornea, if once established, is not removed by the complete cicatrisation of the granular condition. He also clearly saw the connection between the anatomical condition of the lids and the liability to relapses. "No treatment can prevent relapses from taking place. As long as the lining of the palpebrae continues vilous this accident is liable to occur, with all the severity of the original attacks." (Op. cit., pp. 217, 218.) He insists strongly on the danger to Society of convalescents being allowed perfect freedom of movement, and emphasizes the duty in regiments and other bodies of men of daily inspection of all the apparently healthy. By attention to these facts he claims that he had prevented the multiplication of the disease "to an incalculable extent." He prints a colored engraving of the granular condition of the lower lid "to impress the importance of this stage of the disease more effectually on the minds of others," and adds that "in regimental practice the disease was seldom suspected to exist unless the eye itself was either as red as the patient's coat or overflowing with matter." (Op. cit., p. 225.)

No clearer proof of the presence of Trachoma in the Egyptian Ophthalmia could be desired.

What proportion of the cases was Trachomatous it is now quite impossible to ascertain; the probability is that the various conditions we have discussed were mingled in proportions varying at different times and in different places.

As is said in the report of a Special Medical Board appointed by the Commander-in-Chief to consider the subject in 1810:—"The purulent Ophthalmia prevails at different times, and in different places, with very different degrees of malignity; and even in the same place and at the same time, some persons suffer under the most violent symptom of the disorder, whilst others have it in a comparatively mild degree."

The Egyptian Ophthalmia continued, for many years after its introduction into Britain, to cause havoc in the garrisons scattered over the country. In 1816, we learn from Patrick Macgregor that no less than 2,317 men "were a burden upon the public from blindness in consequence of Ophthalmia," that number excluding those who had lost the sight of only one eye. Vetch records that in the summer of 1808, 900 cases passed through the Ophthalmia hospitals, gathered from more than 40 corps. For more than a generation the disease continued to be a scourge of military life. The history of Hygiene, and notably of Military Hygiene, can display many triumphs; but few chapters reveal so happy and dramatic a change of scene as that whose early pages contain the pictures of devastation and disaster caused by "Ophthalmia." The annual Health Returns of the Army, even of the garrisons stationed in Egypt and India, could probably be searched in vain to discover any mention of the heading once responsible for the terrible losses indicated in the quotations given above. The part played by British army surgeons in the history of Trachoma is one of which their successors of the present day may well be proud.

How acute the problem still is in several of the Continental armies may be read at large in Boldt's excellent monograph on Trachoma.

MEDICAL ORGANIZATION DURING REAR-GUARD ACTIONS IN CIVILIZED AND SAVAGE WARFARE

By COL. W C. BEEVOR, C.M.G., R.A.M.C.
Late Scots Guards

Our duties in rear-guard actions call for the exercise of common sense, coupled with dash and circumspection. They must of necessity vary according to the nature of the ground, whether conducted in civilized or savage warfare. In civilized warfare we have the assistance of knowing we may leave cases unfit for transport to the care of the on-coming enemy; and I propose to study this field of operation first. In open country, with scattered elevations, our troops will be occupying points of vantage on hills, or behind trees, walls, houses, etc. If on a hill, they will be lying close to the horizon, and the situation presents several problems for solution: first, where to place the personnel and stretchers—and I warn you that the most dangerous zone is that which lies on the reverse slope of the hill; this is due to the tendency of artillery and rifle fire to drop over the crest of any rising ground it is attacking. Shrapnel shells are aimed so as to distribute their bullets just over the crest, but they don't always burst in the space calculated upon; their contents and casing, consequently, scatter behind, or in front of, the space aimed at; in the former they scatter over the reverse slope and richocet bullets are prone to fall at varying angles over this slope, in rear of the fighting soldier. It is important, therefore, to place the regimental medical personnel in "dead ground" at the sides of the hill, and, if possible, throw up a shelter for them in the shape of holes dug in the hillside—such a situation is the safest from bullets or shells directed at the hill. A shell, for instance, is directed so that it may burst just over the crest, hence medical personnel should never be placed there, nor should casualties be carried down through this zone; they should be smuggled away at the sides of this fire-swept area. You must never form a collecting or dressing station. There are two reasons for this: first, the necessity of keeping the enemy ignorant of the strength and disposition of the rear-guard, and collections of men at any spot might be seen by flanking parties; secondly, the rear-guard troops may at any moment have to beat a hasty retreat, so that only first-aid material should be unpacked, because you have to retreat in front of your troops, and should have got away all wounded able to move before the retirement commences.

Those who direct medical assistance to a rear-guard should take every precaution to avoid their men and wagons being seen by the oncoming enemy, otherwise they may give away the strength and position of the force they succor. In consequence of this, it most frequently happens that ambulance wagons cannot be employed at all, or only at some distance from the fighting line; arrangements must be made to leave bad cases in sheltered spots, or in buildings, with a Geneva flag prominently placed to indicate the nature of the work within, and the casualties, as it were, "sneaked" away. We must always keep in mind that directly a rear-guard gives way, its retreat to a second position is almost invariably a rapid one, and should not be hampered in any one particular.

In savage warfare we occupy a unique position, no matter under what conditions the fighting may be carried on; in fact, every individual engaged becomes a fighting unit, and some in addition must occupy their best talents in assisting the purely fighting ones, none more so than those of the medical department.

I suppose the greatest tax ever placed on a department is a skilful handling of medical work during a rear-guard action in savage warfare. Here, again, our dispositions must be regulated according to the conditions under which the fighting is

conducted, whether on an open plain, in a river bed, on a mountain side, in a forest, etc.; but in all, certain common rules apply, and I beg to lay before you those which military history and some personal experience have impressed me as most effective. Firstly, it is our duty to point out to all ranks the absurdity of that "playing to the gallery" indulged in by some who seek fame in the theatrical "rescuing of wounded comrades," by the purely fighting men—their energies are required by the commander of the rear-guard for repelling his enemy, and only in very exceptional instances is it necessary for fighting men to weaken the fighting line by carrying wounded out of action. Those detailed specially for this duty must be ever on the alert, watching each casualty as it occurs, and hastening its removal to the reserve force—common sense and quickness of resource are the two main talents that make for our efficiency in these extremities—and I need not enter too much into detail; but one guiding principle is to keep in mind that the ground over which our men are fighting must be left free of wounded, hence we should have sufficient personnel to ensure this, and make our dispositions accordingly. Casualties must be hurried away, and it is quite within the province of the officer responsible for medical work to ask the general officer commanding to supply sufficient stretcher bearers and stretchers from the main body, or reserve force, to attain this end. It does not seem always to strike a commander that the main body, on which the rear-guard is falling, must take the place of collecting and dressing stations, and field ambulance units' causalties must be hurried through to the reserves, medical officers must remain with the fighting lines, and only carry out the most urgent first-aid requirements. In a properly conducted rear-guard action the officer commanding and his staff are the last to leave each position, and are constantly watching each phase of the fight, calling up reserves, directing retirements and flank movements, etc., and his senior medical officer should be constantly in touch with him, to receive and transmit orders, in order to avoid blocking by wounded of any retirement routes, and keeping up a constant supply of medical aid to the different units; especially will this be found necesary in retirements down a river bed, or between mountains, where many flanking parties must be thrown out, and ought not to be hampered in their duties by attending to their wounded. Frequently at a critical moment have flanking piequets been prevented from making a victorious and telling movement, by having to remain in one position, to protect their wounded; and in other instances have suffered terrible losses by not being able to beat a hasty retreat, because they had to carry their wounded away. During various retirements in the late Tirah Campaign, 1897-98, I had the pleasure of witnessing two conducted by General Westmacott, and a more instructive and valuable experience it would be impossible to go through. The latest publication, "Campaigns and their Lessons, Tirah, 1897," by Colonel C. E. Caldwell, C.B., describes these two masterly retirements, and the book is well worthy of study by all classes of soldiers. At the end of his introductory remarks he says: "The experiences undergone by Sir W. Lockhart's Field Force in its contest with the Afridis and Orakzais are specially instructive, owing to the extent to which the problem of the wounded—a problem which is often exceptionally troublesome in small wars—was almost daily exemplified during the operations. Their tendency to show their greatest zest and activity when following up an adversary in retreat is apt to make this problem abnormally difficult of solution when confronted with guerillas. Even comparatively speaking civilized insurgents in arms against a government are inclined to mishandle soldiers who are so unfortunate as to fall into their hands; but when the troops are pitted against ferocious savages the disposal of the injured becomes a source of utmost anxiety. This question assumed extraordinary importance in Tirah, and it served as a contributory cause towards bringing about certain minor reverses of which the troops were the victims."

I am able to confirm this statement. Several instances occurred during the campaign where the transport of wounded so delayed detached bodies of our troops as to lead them into disaster; and with the advantage of this lesson, I consider it the duty of our service specially to edu-

cate its personnel in the requirements of an emergency so frequently encountered in the wars of a world-wide empire such as ours. Paragraphs 214, 215 and 218 for Royal Army Medical Corps training are sound in principle, but I submit they fall very far short of the necessary detail; and administrative medical officers in particular will find their knowledge taxed to its utmost in the effective disposition of their units during savage warfare. The same general principles apply to fighting in forests, thick brush and jungles, but on an open plain or sandy desert, a rear-guard action entails special arrangements for clearing casualties from the fighting line. In savage warfare there is not likely to be an appreciable area between the rear-guard and its supports, on account of the favorite tactics of savage tribes displayed in their many flank attacks, and a linked line of stretcher bearers should be in constant work between the rear-guard and its supports—handled quickly and skilfully by the directing medical officer, so as to keep their movements in time with those of the fighting men, and clear away casualties without confusion or hampering of either rear-guard or supports.

This is quite different to civilized warfare, where the seriously wounded may often be left to the care of an advancing enemy, and any hampering of retirements by carrying away wounded to the detriment of fighting efficiency should be severely suppressed. It generally ends in the loss of several sound fighting men, to enable someone to help away a wounded man—it is thus obvious that the balance of efficiency is greatly in favor of leaving the disabled one to take his chance. Wounded officers, in particular, should enjoin their men not to impede their retirements by trying to assist them out of action. I saw this more than once during the late South African War, where wounded officers imbued with a gallant sense of duty simply ordered those offering assistance to mind only the legitimate business they had on hand. We cannot, however, risk this in savage warfare, and the medical department is in a position materially to assist a rear-guard, not only by prompt attention to casualties, but by establishing a confidence that helpless comrades will not be left to the mercy of savages, and thus improving the moral of a hard pressed and dangerously placed body of men.

I am strongly in favor of supplying a mixture of hot coffee and brandy to slightly wounded men in a rear-guard, with the object of sending all those fit to fight back into the fighting line. By this means, men suffering from shock may be temporarily buoyed up, and add their all-important fraction to the quotient of efficiency. You may say this is very fine in theory, but impossible in practice, for how can you supply hot coffee in an ever-changing position, where fires must not be lighted, or perchance where snow and rain preclude the possibility of making anything hot? I grant this is true in some urgently organized rear-guard actions, but in the vast majority of cases it is possible of attainment for any anticipated fight can be so supplied by means of thermos flasks, and if these are not available, biscuit tins, boulli-beef tins, kerosene oil tins, etc., can be converted into thermos receptacles by wrapping them in thick layers of felt, and jamming this mass into larger tins. If felt is not to hand, spongiopiline, heated sand, flannel, etc., may be jammed between the two tins and keep the mixture fairly hot for a considerable time. A capital lid for the tin of hot coffee can be made by placing a layer of spongio-piline over it, and fixing the edges firmly down by rubber plaster. The tins should be carried by a handle of wire, strong string, etc., fixed through holes in the outer tin. The exercise of common sense, of energetic preparations for possible emergencies, is all that will be found necessary for supplying stimulus in most rear-guard actions. Modern warfare undoubtedly precludes the possibility of prolonged fighting by daylight; the rapidity of movement necessary for successful avoidance of our present and future musketry and quick-firing artillery, backed up by aerial scouting, must eradicate our old methods involved in the holding of positions by small forces as a sham, and in civilized warfare the only rear-guard actions of the future will be those protecting the remnants of a defeated army; in uncivilized warfare, and generally in mountainous countries, they will remain as heretofore.

As a few examples, I will show on the screen some places in Northwest India

over which fierce combats were engaged in during 1907-8. Picture No. 1 illustrates the valley below Dargai Hill, the scene of a historic charge by the Gordon Highlanders and Gurkhas. You will perceive what splendid chances this country gives to an enterprising army that moves rapidly from hill to hill, can shoot well, and can judge distances at all levels. Those responsible for the care of casualties in such positions have indeed a grave responsibility and the only way to success is to arrange with the commander of the retiring army to develop a chain of bearers between flanking parties and main body, leaving the fighting men of the former free from anxiety regarding wounded comrades, and imbuing them with a confidence that they will each be rescued from a savage enemy should they have the bad luck to get hit. No flanking party should have to beat a hasty retreat and look after their wounded; the medical department should be so organized as to clear the ground of casualties the moment they take place.

Scenes Nos. 2 and 3 illustrate a rear-guard action where all the transport was held up by an enterprising enemy, and casualties were occurring rapidly amongst mules and men. The medical work in such positions is most arduous; I found it best to hide casualties beneath overhanging pieces of the cliffs, leaving each with one or two men, ready to move when the column started and to be hidden again if a halt was called; but never must they be allowed to lose their places in the column so as to lag behind, rather must they push on to the head of the retiring force. Medical officers must here be prepared to run their luck and move freely along the column as casualties demand their presence. I would here offer the advice that every medical officer and bearer carry a goodly supply of dressings in a haversack in such rear-guard actions as shown in this picture—here should be no calling for dressings, etc., each one should be equipped complete, and, most important of all, each medical officer should have a hypodermic syringe ready to alleviate suffering. If a reliable orderly is available, it is best he should carry the hypodermic syringe, have it always full and ready to be handed to the officer for use.

Picture No. 4 illustrates a position in which the Afridis carried out many successful attacks upon our rear-guard. You will see a broad river, the Bara, in places split up by sandy islands, and bounded each side by boggy rice fields. Over such ground our forces had been harassed from daybreak during a 12-mile march down the river bed—the forts on the right constituted the town of Sher Keil—our main body took this town with little loss, but an enterprising enemy fiercely attacked the centre and rear of our column throughout the day. This presented a problem to the medical department most difficult of solution—no wounded could be left behind, scarcely any Army Hospital Corps bearers were left, many having been shot, the majority stampeded. Nearly 100 wounded had to be carried by their comrades, many attacks were made from the low-lying hills each side the river, necessitating a halt, during which the wounded had to be placed on the ground, and their bearers fight hard to avoid being cut up. Sometimes the enterprising enemy got amongst us, and hand-to-hand contests took place. The Gordon Highlanders and Gurkhas, with remnants of Scots Fusiliers and Dorset Regiment here fought with magnificent tenacity—not a man was left behind, but ultimately, owing to darkness and drizzling rain, the rear-guard got separated from the main body, and the enemy quickly took advantage by rushing the interspace; courage and skill alone saved the situation, but the wounded so hampered our movements and our rushes at the obstructing enemy that we lost many more than would have been the case had we not been so hampered. It was 10.15 p.m. before the last casualty had been rushed up the banks into Sher Keil—and the enemy was so troublesome, most of the rear-guard never got in at all, but took shelter for the night in an adjoining fort.

On reflecting upon our work of that day, one could not but confess our medical organization left much to be desired—such experiences emphatically demonstrate the necessity of providing beforehand for adequate means of freeing the fighting man from such a drag on his efficiency; and I beg to draw attention to the very meagre instruction contained in all works on the subject.

I would suggest that where there is a probability of a rear-guard being hotly engaged, a sufficient number of bearers be organized as connecting links between the main body and the rear-guard. If sufficient are not forthcoming from the Army Hospital Corps, some should be told off from the fighting units, and stretcher bearer brassards (SB) given them, this auxiliary bearer corps being under an officer, who could watch the course of events, and dispose his bearers as required; his primary object would be to clear away casualties from the rear-guard, push them rapidly into the main body, and let nothing detain a regular flow of these cases out of the arena of the fight. First aid may or may not be given them, if time presses no treatment should deter their transit, except perhaps the stoppage of serious haemorrhage. Those with the main body should be ready to receive casualties from the rear-guard, give them requisite assistance at once, and then be ready to carry them on. Bearers from the rear-guard must not be detained a moment. Modern warfare must cause modifications of all our prospective arrangements, but we can rely on sound general principles in most cases—those in command must be prepared to change every premeditated scheme so as to fit in with an ever-changing situation. Aeroplanes will of a surety checkmate most rear-guard actions, but war cannot be always fought out in large masses of men accompanied by aeroplanes; and a retreating force must be prepared to leave its wounded, in civilized warfare, but retreat in fighting formation before a savage enemy. Long-range volleys from well-placed infantry and quick-firing guns must hasten a retreat in future warfare in a manner that has never before been necessary, throwing upon the medical department an onerous and difficult problem which it should be well prepared for.

In my humble opinion fighting under cover of darkness will be more engaged in than heretobefore, and medical organization will have to face the double work of freeing its fighting line from hampering casualties both in retreat and advance, as the issue of battle works out for failure or success.

In conclusion I beg to lay stress on the good work a medical unit is capable of accomplishing when properly administered; not only in the relief of suffering amongst the wounded, but by establishing a confidence amongst those actually fighting, whereby they may feel sure that whoever has the bad luck to get hit will be accorded ready and skilful treatment.

A Wish.

Oh! to be a sailor on the sea!
Oh! to be as blythe and gay as he!
And, oh, to be as happy when the waves
are cross and snappy,
He walks the decks and whistles merrily.
Oh! to be the skipper on the bridge!
He winks his eye and counts it privilege
To toss upon the billow, while I upon my
pillow—
Let's draw the veil—this story please
abridge.

SERUM THERAPY IN CANADA

By SIR JAMES GRANT, K.C.M.G., E.R.C.P., (Lond.)

In 1861.

The subject of Serum Therapy, through which Dr. Friedman, of Berlin, Germany, has visited this continent, is now world-wide, and so closely identified with a life-saving influence, that I have pleasure in submitting to this association the following history of its origin:—

Nineteen years have elapsed since the formation of The Canadian Association for the Prevention of Tuberculosis," and the marked progress during that period, in staying the growth of tuberculosis is truly most encouraging, and the evolution, in this department of Science, is of the most undoubted character. Within the past half century, Virchow, Pasteur, Koch, Lister, Wright and Flexiner revolutionized the domain of Bacteriology, and their discoveries marked beyond doubt their well defined scientific advancement. In 1861, as physician to General Protestant Hospital, Ottawa, assisted the late Dr. Hamnet Hill in a surgical operation, and contracted blood poisoning, while at that time in a poor state of health. After several weeks of serious illness, my entire system underwent a complete change for the better, to perfect recovery, and for the past fifty years of strenuous duty in a noble profession, have not been a single day off work. Why such a remarkable change for the better should have taken place was a difficult problem. I concluded that an outside poison had nullified the influence of an inside poison in my system, which stimulated research along these lines. I then introduced into the system of patients with skin disease the serum of ordinary vaccine, with the most practical and convincing results, and on the 20th February, 1863, over 50 years ago, published the entire facts, Medical Times and Gazette, London, England, drawing attention to a chief point, that such data prove nothing unfavorable to the claims of vaccination as a protective agent against smallpox, they prove only that which each day's experience tends to corroborate, "That man has still much to learn."

Since that date the whole science of Bacteriology has been developed, and recognition of Serum Therapy as an undoubted potent factor in the cure of disease.

In 1863.

THE TREATMENT OF SKIN DISEASES

Reprinted from the London Times Gazette, London, Feb. 20th, 1863

To the Editor of the Medical Times and Gazette:

Sir,—Knowing the extensive circulation of your valuable journal, I take this opportunity of placing before the members of the profession, through its columns, certain facts, in order that those whose province it may be to treat cutaneous diseases may have an opportunity of testing the correctness of the statements, and reporting accordingly.

Case 1.—Psoriasis Palmaris, of five years' duration, cured by Vaccination, November, 1861.—A. B., aged 55 years, robust conformation of body; temperate habits; not the subject of scrofula; has had psoriasis palmaris for a period of five years, subject to occasional improvement of the disease under various methods of treatment, but never entirely free from the disease, which presented the annulated character.—red, dry, cracked and exfoliating, and extending from the wrists to the fingers. During a sojourn in the Southern States, the action of various alternatives, such as iodide of potas-

sium, biehloride of mercury, iodide of iron, as well as the triple solution of mercury, iron and arsenic had been well tested. As a dernier ressort, I resolved upon vaccination in order to observe the alterative effect of the vaccine virus upon his system, not without previous consideration, but with a firm conviction that under certain circumstances, vaccine introduced into the system is one of the most powerful blood purifiers we possess. The operation was successfully performed, the pustule passing through the various stages from incubation to its separation. Having carefully observed its progress, I found that, as it advanced from the third to the seventeenth day, the disease on the hands and fingers gradually receded, and on the twentieth day from the date of the vaccination, the parts recovered the natural appearance and continued so. Was successfully vaccinated when a child.

Case 2.—Tinea Nummularis situated on the right forearm; boy, aged 13 years, of florid complexion, vigorous habits of body and healthy parentage. This disease existed over two months, and covered a space about two square inches near the front aspect of wrist joint. Vaccinated on the opposite arm; operation successful. About the seventeenth day the disease disappeared, no other treatment having been adopted. Was previously vaccinated when one year old.

Case 3.—J. S., aged 25 years, a somewhat stout man, with fair skin, temperate habits and non-scrofulous aspect. States that three months ago he had an indurated chancre, and eight weeks afterwards observed an eruption on the face, and more or less over the entire body. December 15, 1862, came under my charge, when the case was well marked "tuberecula syphilitica," round, small and a copper color, and possessing more or less density and elevation. Vaccinated on the arm successfully, and on the fourteenth day afterwards the tubercles over the body flattened down, and at the end of four weeks only a slight discoloration of the skin, at several points where the eruptions were worst, could be observed. From this date he went on gradually improving in general health under the influence of tonics.

Case 4.—Psoriasis Lapraeformis.—S. G., aged 24 years, married, and the mother of four healthy children. July, 1862, first observed what was termed a "rash" on the elbow joints, subsequently on the knee joint, from which points, within a period of three months, it extended more or less over the entire body, even to the roots of the hair. November 10, 1862, I was first consulted, and placed her under the action of the usual alteratives for three weeks without any marked improvement. January 2, 1863, vaccinated successfully over a clear part of the skin on left arm. As the pustule passed through the successive stages, the eruption gradually disappeared, and the skin recovered its previously healthy aspect, about four weeks having elapsed from the date of vaccination to the disappearance of the disease in toto.

Various other cases illustrative of the effect which vaccine produces upon the system, as an alterative, may be cited. However, on the present occasion I consider the above cases sufficient evidence that the simple process of vaccination should not be confined alone to its protective influence against smallpox, but also extended to the treatment of many cutaneous diseases not of parasitic origin, but arising from irritant poison, generated in the organism or in that vital fluid the blood. Over such existing impurities, vaccination beyond a doubt, possesses a powerful influence. Such facts prove nothing unfavorable to the claims of vaccination as a protective agent against smallpox; they prove only that which each day's experience tends to corroborate, namely, "That man has still much to learn."

Trusting that this point may merit the attention of the leading dermatologists, to whom we Canadians look forward for an expression of opinion such as can alone be formed from an enlarged experience.

In 1891.

INOCULATIVE TREATMENT OF TUBERCULOSIS

Reprinted from the Canada Lancet, March, 1891. Page 221

The Koch treatment still continues to be a matter of interest and speculation among the members of the medical profession throughout the world. The enthusiastic assurances of success, made rather upon a knowledge of the discoverer of the remedy than upon the results of its use, have, in a measure, abated, and all are waiting for tabulated results to pronounce the success or failure of the remedy. It would at present be unwise to hazard an opinion upon the matter, but the report of relapses in some of the cases of lupus are somewhat discouraging, and in the cases of pulmonary tuberculosis, the time elapsed has not yet been sufficient to state anything definite. It may reasonably be inferred that inasmuch as the remedy is an extract of the tubercle bacillus, its injection in large and repeated doses would, in certain cases, induce acute miliary tuberculosis. It has been asserted that in the event of failure of the treatment the idea of treating diseases by inoculation of the products of bacteria is a valuable suggestion to the practical therapeutist. But this is in no sense a new idea, for in the London Medical Times and Gazette of March 14, 1863, Sir James A. Grant, of Ottawa, showed the possibility of vaccination proving curative in many forms of contagious affections, and his communication of that date forms a very interesting item in the light of the discoveries of Dr. Koch.

Credit has been given by Dr. Radcliffe Crocker, of University College Hospital, London, to the paper on this subject of 1863, in his work on Skin Diseases.

(Re-printed from the Montreal Medical Journal, January, 1891, page 556.)

In these days when cure by injections or inoculations is attracting such widespread attention, it may be of interest to note that so far back as 1863, Dr. James Grant, of Ottawa (now Sir James Grant), applied ordinary vaccination for the cure of skin disease, and with evidence of success. His paper on the subject may be found in the Medical Times and Gazette, London, for the year above mentioned. In some of the cases various remedies had been administered as alterative with apparently little benefit, but after vaccination the disease disappeared in a comparatively short time. In other cases no remedy other than vaccination was tried and healing followed. From all the conclusion is drawn that the vaccination acted as an alterative on the nutrition. Apparently this is just what Koch's lymph does, though it would seem that it is peculiar in selecting the tissues that are the site of the specific disease.

I humbly apologize for calling the attention of the association to this important subject, after half a century of almost slumbering science, but my chief desire is to guard the position of Canada, as to priority in this great problem, on the success of which rests the relief of suffering humanity in a great variety of diseases, not the least tuberculosis.

First—BE
Then—DO
Then—SPEAK

THE DISPOSAL OF GARBAGE AND REFUSE IN TOWNS

By W. R. HALL, M.D., M. O. H., CHATHAM, ONT.

A Paper Read Before the Ontario Health Officers' Association, Parliament Bldgs., Toronto

By towns we mean municipalities with populations somewhere between five and ten thousand inhabitants.

In some towns this subject receives very little attention from their town councils, the whole matter is left to individual enterprise or caprice, each householder dealing with his own garbage and waste as he sees fit; this should not be, because the health of the whole community may be affected by the carelessness or neglect of a few persons. The municipal council of a town is the only authority that can initiate and enforce proper regulations, and it is their business.

In very small towns and villages where wood is used as fuel a system suitable to the local conditions, and regulated by by-law, may be efficiently carried out with very little expense by burning in the kitchen ranges and furnaces all garbage and organic wastes from ordinary households, after allowing the liquid parts to drain off.

While the larger accumulations of garbage from hotels, boarding houses, etc., are of sufficient value for feeding hogs, to induce those requiring hog-feed to remove it regularly free of cost.

Other waste products are easily disposed of, where land is plentiful and haulage short and cheap.

Every town, no matter what its size or location, should have a well-thought-out system, enforced by municipal by-law, suitable to their special requirements, and these requirements will differ materially in different towns.

The material to be disposed of in towns consists of manure, ashes, rubbish, tin cans, worn-out or discarded metal shingles and siding, worn-out water conducting pipes, dead animals and garbage. The organic portions at least of this waste material should be taken care of by the municipal authorities in every town before they become a nuisance, and in such a way that they wont afterwards become a nuisance or cause disease or ill-health, and this should be done at the smallest possible expense to the municipality that will yield effective results.

Stable manure can always be disposed of to farmers and gardeners, who are willing to haul it away to use on the land; ashes should never be mixed with any garbage or other refuse of any kind and is then a good road-maker and filler, and can generally be sold in the spring of the year for more than the cost of carting.

Over-plowing or burying is suitable to disposing of the bodies of dead animals, and organic material unfit for food of animals, also for garbage, where other means, as feeding animals or burning, is not available.

Burning in the open, that which has in itself, sufficient combustible material to consume it to ashes is very sanitary and satisfactory, but such material has in itself sufficient power of combustion, when confined in a furnace such as I have already suggested to consume large quantities of less inflammable refuse, and may be used in the way to great advantage.

Rubbish, including waste-paper, pasteboard boxes, discarded broken furniture, toys, etc., worn-out carpets, rugs and bedding, discarded clothing, bottles and broken glass, etc., together with tin cans, should all be made to pass through a fiery ordeal before being used for filling purposes. This can be effectively done by one or more furnaces, made from sections of worn-out steam boilers easily obtained in almost any locality, placed on end at the intersection of two transverse trenches, over iron grates, when operating, three of the trenches should be covered by boards, the fourth or open one should be the one opposed to the prevailing wind to give good draft. This is the method now in use in Canada in all militia train-

ing camps to dispose of garbage and other waste material.

A little good sense and care on the part of the manipulator feeding the furnaces, the whole mass can be converted into ash, melted glass and small tin plates, harmless material, which can be used for filling low places, if tin cans are numerous the solder recovered may be suffiicient to cover at least part of the expense of reduction.

Discarded metal shingles, siding and eavetrough can be used for filling without treatment, except flattening them out, so that they cannot hold water, and become a breeding place for flies, mosquitoes, bugs, etc.

The methods now practised for the disposal of garbage and waste may be classified as follows: (1) Reduction, (2) incineration, (3) destruction by manipulators, (4) dumping on land, (5) burying by overplowing, (6) feeding to animals —principally hogs, (7) burning by different methods.

The three first methods commend themselves as the most sanitary and best, but are only suitable to centres of large population, on account of the large initial expense of installing the plants, and the cost of maintaining and conducting them, expenses so great that in the case of towns at the present time may be considered prohibitive.

The first method reduction has its limitations, as only organic matters, i.e., garbage and dead animals, can be disposed of, leaving the other waste materials to be dealt with in some other way.

Dumping on land, burying by overplowing, feeding to hogs, and burning by different methods, now generally resorted to by towns, are methods too limited in their application to apply to the needs of cities of large size, but are the methods we wish to call attention to as the only practicable ones for towns that we know of.

All these methods of disposal or combinations of them are now practised in the towns of Ontario to a greater or lesser degree to rid themselves of garbage and other refuse.

Dumping on land is only suitable for refuse which, under ordinary circumstances, would cause no nuisance under the influence of heat and moisture, rain and sunshine.

The last method I will discuss, that of feeding all garbage with a food value to hogs, as a sanitary, rational, profitable and sensible means of sewage disposal, for towns, requires and merits much more extended notice than I am able to give it in this brief paper.

In every town in Ontario there are swill gatherers, and there has been for many years; the occupation is probably quite as ancient as it is honorable.

I remember them when I was a boy, when hog feed was cheap and dressed pork as low as $4 per cwt.; even then it must have paid or they would not have been attached to the business.

As M. O. H. of the City of Chatham, I have had twenty-eight years in dealing with these people, principally, it is true, in trying to suppress the nuisances they created—nuisances which, I believe, need not have been created if proper locations were selected for the piggeries and proper methods followed in the gathering the garbage and feeding it.

These men conducted their business at a profit, and, I think, made quite as much money as their business ability and capital invested entitled them to, or would yield them in other lines of business.

Men of aesthetic taste and good business ability were not attracted to this line of work, and it fell into the hands of others generally, but if towns adopted this method of disposal of their garbage and created a monopoly of its collection and disposal, regulated by a strict by-law, a better class of men might be induced to contract for the garbage, so that it would cost a town little or nothing for its collection and disposal.

Or, better still, towns might establish municipal piggeries to dispose of their garbage, many of these are already in operation in towns and cities in the United States; one in Massachusetts, in 1910, made a profit of over $4,000, one city in Michigan, after having tried a contract system for garbage, successfully, erected a municipal piggery that has since paid an annual profit and proved satisfactory in every way.

A municipal piggery would no doubt produce more or less nuisance, but the nuisance is greatly lessened by proper

buildings, suitable location and strict attention by intelligent persons to every detail of the work.

The selection of location, and kind of land is very important and a sparsely settled district should always be secured. Those with a careful study of best methods, the expenditure of money, not with the hope of large profits or even any profits, but principally for its usefulness as a garbage disposal plant, would undoubtedly result in a decided diminution of the nuisance which usually accompany hog raising.

The feeding of garbage to swine is not a new practice by any means, as I have pointed out, but only during recent years has it been demonstrated that towns and small cities cannot only use this method for disposing of their garbage, but they can, in many cases, pay the total costs of collection and derive a revenue from the garbage by establishing municipal piggeries for that purpose, and it is universally acknowledged that this is the only way known by which its food value can be economically utilized.

The City of Chatham, with a population of about 12,000 inhabitants entered into a contract with a Mr. Armstrong for 1913, "To call at every residence and place of business in the city and collect and carry away garbage, ashes, refuse and other rubbish therefrom at least twice a week in each calendar year."

Residents desiring to have their garbage, ashes, refuse and other rubbish collected and carried away, must provide a proper covered receptacle to receive and hold the same, in which the same shall be put, and each receptacle shall be put in a convenient place—broken dishes, glass, cans, paper and ashes shall be kept separate from other garbage or refuse.

Collections to be made as advertised in the daily papers of previous day.

This seems like a good contract for the city, as garbage and all kinds of refuse are removed at a cost of 2 1-2 cents per capita. In large cities, where modern methods of reduction and incineration are in use, the cost per capita ranges from 15 to 19 1-6 cents per capita.

Previous to this year the municipality as such assumed no expense whatever, except for removing dead animals from the streets and alleyways. For this service they paid $300 per year to a city scavenger, and citizens had the privilege of contracting with the so-called city scavenger to remove their waste paper, tin cans and garbage for the sum of 35 cents per month, and the agreement being voluntary and mutual between the city scavenger and the citizen and dissolved at will, the scavenger collected his fees from the citizen and the scavenger had no recourse to the city for payment.

This plan was fairly satisfactory to all parties concerned, but less than two hundred took advantage of it.

When Yer "Well."

When yer pulse begins to drop to where
it oughter be,
An' fever is a-dwindlin' to ninety-seven
three,
An' yer feelin' somewhat stronger'n ye
have fer quite a spell,
Jest don't ye git too cocky ner think that
you are well—
('Cause ye ain't).

Ner when ye can't help eatin', an' yer
clothes begin to fit.
Er when they fit too much so ye let 'em
out a bit.
Ner when yer cough's a mem'ry an' yer
voice is like a bell,
It aint's yet safe to do fool things, an'
makin' b'lieve yer well!
('Cause ye ain't).

But jest you keep on loafin' an' don't ye
dare to git
Too strenuous until yer symptoms all have
quit!
Until yer up all day an' think ye'd like
to sell
Yer outdoor chair and fixin's—until, in
fact, yer well.
(An' then, don't be in a hurry!)

Editorial

The Lives of the People.

Peter McArthur, who writes so entertainingly for one of the daily papers, has been speaking lately about the Suffragette question. He says that it has appealed to him in a new light. Well, for that matter, every new day seems to bring something new touching this great question, and one is forced to believe that, much as one deplores the militant methods of the seekers for the ballot, the women are fighting for a privilege and a right which ought to be theirs when they can show that they will use the ballot and use it properly. There is a growing impression that too many in our country now exercise the right to vote, and if the women can do anything to make the ballot more sacred, that day will be welcome on which they achieve their desire. However, it is not about the ballot for women that we wish to speak, but about that part of the article which calls to mind the need of a department in our Federal Government looking towards the care of the lives of the people. Here is the portion of the article which makes a profound appeal:

"What we need down in Ottawa is a member of the Cabinet whose sole care will be the lives of the people. Practically every department of the Government deals with property alone. Our prosperity is estimated only in terms of wealth. Our progress is shown only in statistics of increased business. If we had a Minister of Life, backed by the votes of the women, we might have an occasional budget somewhat like this:

To promote peace and end war	$35,000,000
To promote public health	10,000,000
To improve condition of workers	10,000,000

"And so on, and so on, and so on. Of course there would probably be a lot of other fussy reforms advocated, but if the movement once got sufficient force to change the tendency of modern development and cause the rights of life to be properly considered, matters would soon straighten out. It is also quite probable that many women would go in for the rights of property as strongly as men, but I believe that the general tendency would be towards the betterment of social conditions. For years I have felt the need of a change in this direction, but did not realize that the unrest among thinking women was due to this cause. Now that I see the real foundation of the movement, it is my intention to study it carefully, for I am inclined to think that it is about the most helpful movement of our time."

On Dec. 13th, 1911, in Montreal, the first Congress of the Canadian Public Health Association was held, and on that occasion the Hon. R. L. Borden, Premier of Canada and Vice Patron of the Association, declared himself strongly in sympathy with its work. He said: "I do not think that in the past the matter of public health has received all the consideration it should, and I trust that in the future the Hon. Mr. Burrell will be able to give to it a more direct attention than it has yet received." On that occasion also, the Hon. Martin Burrell, Federal Minister of Agriculture, expressed his pleasure at the establishment of the Canadian Public Health Association, and, said he: "It is a real shame that in so vast a country as Canada there should be such problems as overcrowding and slums. Health is a very vital matter to our people, far more important than many things we make a fuss about. And I will say, speaking quite unofficially, that I believe the time has come when even if it does not demand a portfolio, it should at least have a full-fledged department in the Federal Government. And, just as soon as sufficient common sense administrative methods can be arranged which will cut out the overlapping between municipal, provincial and federal authorities in health mat-

ters, you may look for a closer and more cordial co-operation between the various governing bodies, and that time, I am confident, is coming soon."

Thus from all sides comes the cry for the establishment of a Federal Department of Health, and the conviction that it is more blessed to conserve the lives of the people than the lives of the trees, or the game or the fish or the cattle that are within our gates. A bright day has already dawned for health matters in the Dominion of Canada. It is for us to carry the banner of progress, ever forward, until it is planted on the summit at high noon.

The Presbyterian Congress.

The great Congress recently held in Toronto is a matter of history, but its influence will never die. It touched the lives of too many Canadians, too vitally, for its memory to fade away this side of eternity. Nearly five thousand of the best and brainiest men and women of this great Church came together to get a new vision and to catch new enthusiasm and to engender new inspiration. They received all three in a measure filled to the brim and running over. And what was the new vision. It was the vision of the need of humanity, to be met by the Church in a practical way. The spiritual was not forgotten, but the practical was emphasized. The twentieth century will either see a "Church at Work" or a "Church that's dead." There is one thing certain, that the Church and the agencies for the promotion of public health must go hand-in-hand. There are many evils to be eradicated, many sores to be healed. *The Public Health Journal* wishes to co-operate to make the Dominion of Canada the cleanest, brightest, happiest spot on God's footstool. A member of the Congress visiting us paid a great compliment, by saying that our Journal is the greatest exponent of applied Christianity he has seen. This is what we most desire to be. We shall continue to carry out such a programme in the broad field that we have set ourselves.

John Burroughs.

A lover of the out-of-doors; this in a phrase explains and labels the little old man with the snowy beard and the twinkling eyes, who paid Canada a visit a few weeks ago. From his home on the Hudson he has sent out message after message to the reading world, telling of the health and happiness to be found in the woods and by the streams and on the mountain tops in communion with nature and the birds and bees. He knows the language of the birds in all its different dialects. He calls the flowers by name, not in latin terms, but by the old-fashioned names they love so well. He can read the heavens like a book, and can scent the changes of weather with almost unerring accuracy. He can make his bed upon a cushion of leaves in a hollow upon the lap of old Mother Earth and sleep like a child. He loves to sit by some deep pool, under the spreading branches, and woo the finny creatures, until he pulls them struggling into his hand. He writes of Nature as his very best and closest friend. He loves to live. Has he, indeed, found the secret of life? Is health to be found by the path he treads? Is there happiness in such a simple and yet profound existence? It seems so. We shall always welcome John Burroughs to Canada, and we rejoice in the gospel he preaches.

Dr. Helen McMurchy.

The Provincial Secretary's Department of the Province of Ontario is to be congratulated on being able to retain the services of Dr. Helen McMurchy, as Assistant Inspector of Hospitals and Asylums, with special supervision of the Feeble-Minded, scattered far and wide in many institutions of the Province. The Doctor herself is also to be congratulated on her acceptance of this position, with all the rights, privileges, honors and duties pertaining thereto. Every road of progress is a hard road, but Dr. McMurchy has so labored that the Province of Ontario has become known to the world as one of the foremost States in its attention given to the feeble-minded. Hereafter more power will be given to her, and more opportunity for studying in all its phases that department of medical science, which she so dearly loves, and in which she has had such signal success.

The Friedmann "Cure."

There is no body of men more willing to accord a welcome to new theories than the medical profession, and no body of men more pleased when these theories are carried out into practial experience and made useful to the masses for the healing of disease. For this reason Dr. Friedmann, who arrived in the United States and Canada with loud protestations as to the curative value of a new remedy for tuberculosis, was given all the encouragement and shown all the courtesy that any mortal could ask. He has come; he has tried; he has failed. Elsewhere in this issue we publish the finding of the committee whose duty it was to follow up Dr. Friedmann's work in the Canadian cities visited. None can be more sorry than the medical profession that he has failed to bring a cure, but despite the non-ethical tactics of the German doctor, he has been given every chance, and the medical profession now owes it to the public to present expert testimony from our Canadian physicians.

Hon. Adam Beck, Dr. G. D. Porter, and Dr. Charles Hodgetts, with other members of the Committee of the Canadian Association for the Prevention of Tuberculosis, have rendered a distinct service to Canada by their work in connection with the Friedmann "cure" and their report thereon. They have investigated the cases thoroughly, and they have published their findings in a succinct manner for the Canadian people. The public must be grateful that such splendid work has been accomplished by this most important organization, as it establishes at the very outset the valuelessness of the "cure" before Friedmann institutes have a chance to spring up all over the land, which by deluding many anxious sufferers would not only do incalculable harm, but would set back the wheels of progress in the treatment of this disease many years, if not decades.

Nation Wide Campaign for Better Schools.

In a current issue of the American Academy of Medicine Bulletin, Dr. Thos. A. Storey, of the College of the City of New York, contributes the leading article of the month on the subject of "The Fourth International Congress on School Hygiene." He writes:

"The Fourth Internation Congress on School Hygiene will be held in the United States this coming August, because the Mayor of the City of Buffalo sent a delegate to the Third International Congress on School Hygiene, held in the City of Paris during the month of August in 1910, inviting the Permanent International Committee, having charge of the Congress, to hold the next one in the City of Buffalo. Several public-spirited citizens of Buffalo personally guaranteed the expense of this Congress. The American School Hygiene Association undertook to organize the Program and look after the Scientific Exhibit. The Permanent International Committee accepted the invitation from the Mayor of the City of Buffalo and the citizens of that municipality and the officers of the American School Hygiene Association, and are now making every effort to support their obligation successfully.

"The main emphasis in the plans for this Congress is being laid upon the ways and means of supplying the important facts of school hygiene to those people who will use them. An energetic campaign is being organized for the purpose of bringing the objects of the Congress to the attention of public-spirited citizens in every community in the United States and Canada. It is hoped that a wide membership may be secured, through which the published proceedings of this International enterprise may be distributed to a great many communities. If this membership can be made up of people who are interested in improving their local school condition, it will go a long way toward bringing to the officials of the Congress a realization of their ideal."

In conclusion, Dr. Storey says:

"There are good reasons for expecting that this Congress will leave a permanent impression upon school conditions in this country. A number of the State organizing committees are contemplating permanent organization in the interest of school hygiene. The Women's Clubs have the same object in view. If these various organizations establish themselves upon a permanent basis, the influence of this Congress will eventually be measured in terms of healthy children, happy homes, successful citizens, and a more efficient community."

The Question Drawer

CUNDUCTED AT THE ONTARIO HEALTH OFFICER'S ASSOCIATION

By DR. J. W. S. McCULLOUGH

1. Should the Sanitary Inspector attend quarterly meeting, and if he does should he get paid extra in a municipality only paying $15 to Sanitary Inspector?

Answer—There is no provision for Sanitary Inspector attending meetings. He should get sufficient salary. He is not obliged to attend meetings unless instructed by the Board.

2. In case of disposal of sewage according to your regulations re septic tank, what course do you advise where there is not sufficient ground for system?

Answer—If there is not sufficient land area, the effluent from septic tank should be otherwise provided for. If the soil is unsuitable (clay) 12 or 18 inches of sand might be deposited over the clay and the subsoil pipes laid in this as described in pamphlet on sewage disposal issued by the Provincial Board.

3. What does this convention consider a reasonable minimum salary for M. O. H. in villages, towns and townships?

Answer—In towns a reasonable salary might be based on the population, say, $100 for the first thousand and $25 or $50 for each additional thousand or portion thereof.

In townships it is difficult to say what is a reasonable salary. Some townships pay $100, some $5 or $10. As soon as the M. O. H. demonstrates to the public that he is worth it, he will usually obtain a better salary. It would be a good plan for the M. O. H. to call public meetings for the various schools in his municipality and give an address to the ratepayers, children and teachers upon sanitary matters. If he desires it, the District Officer of Health will help him in any way possible.

4. Explain intentions of the Act in the case of payment for time in addition to hotel and railway fare:

(a) Where the M. O. H. has a special amount as salary.

(b) Where the M. O. H. has no salary specified.

Answer—The M. O . H. can only collect for hotel and traveling expenses. Usually, however, the municipal council pays a per diem allowance for loss of time. Under Section 22 of the Public Health Act the local Board of Health might vote a sum for services rendered which might be made to include the per diem allowance.

5. What are the duties of District Officers of Health in relation to township local Boards?

Answer—To advise and assist the M. O. H. in improving sanitary conditions of the municipality.

6. Can the municipal local Board of Health compel the trustees to give a report as to the sanitary condition of school, and if they do not and they send our inspector, can we compel the trustees to pay for expense of sanitary inspection?

Answer—No; it is the duty of the M. O. H. to inspect the schools and disinfect at expense of the municipality if necessary.

7. Can a man whose lot does not run 100 feet from his house in a small country village keep a pig?

Answer—No. See paragraph 20, Schedule B, Public Health Act.

8. What should be given as immediate cause of death in this case: A man had paralysis agitans for three years and epithelioma of face for two years. He refused operation for the latter and, gradually becoming weaker, died at age of 79. The disease which caused death was epithelioma, but what would you put down for immediate cause and how could you determine its duration?

Answer—Cause of death, carcinoma of face, because it is of shorter duration. Immediate cause—none.

9. I visited a house suspected of having had scarlatina, and found a girl eight years old, who, they said, had the "grip" six weeks previously. They stated positively that there had been no rash and no vomiting, but a sore throat lasting for two or three days. There was no sign of desquamation, but a pronounced cervical adenitis, the glands on one side being as large as a hen's egg, and the child was very anaemic looking, but no physician had seen her. Should I have ordered the house and the child's person and clothing to be disinfected? Should I have placarded the house till this was done?

Answer—If scarlet fever in neighborhood, this was probably a case of it. Best to have had house and child disinfected. No need to placard after six weeeks.

10. Visited a house in which I found a young lady who had been sick three weeks previously. Had had slight rash, sore throat and vomiting. Slight desquamation on face, especially forehead at roots of hair. I placarded house, but allowed girl's father to continue gathering cream upon the mother agreeing to keep girl isolated. Should I have done so? No physician had been called.

Answer—This is a case of scarlet fever. Should have stopped the father collecting cream. See Regulation 4.

11. Have heard that these people are going out in spite of quarantine, but no complaint has been sent in and they live ten miles from here. Should I go and investigate?

Answer—If the M. O. H. has quarantined he should be satisfied that his orders are carried out.

12. Does certificate have to be signed before the M.O.H. can collect his expenses from the municipality?

Answer—The Member's Ticket will be sufficient voucher. If any difficulty, write the Chief Officer of Health.

13. We are supplied with a very ineffecient sanitary inspector, who will not follow instructions nor try to make himself efficient. The City Council has been notified of the condition and asked to supply a competent inspector, which so far it has failed to do. What do you advise the Local Board of Health to do to remedy the condition?

Answer—The Local Board of Health may employ and pay any sanitary inspector they wish. Payment may be made under authority of Section 22 of the Public Health Act.

14. Description of suitable box for manure at stables, as to size, etc.

Answer—Size about 4 feet x 4 feet x 4 feet, with screen top. As flies require 14 days in which to breed and grow to full size, there will be no necessity for screening if manure is removed and spread on fields once a week.

15. We find that some householders put old tins and broken china, etc., in privy vault, and this creates an objection on part of farmers to receive the night soil or give dumping ground. How may this be prevented?

Answer—Educate and prohibit by by-law. The greater portion of household garbage should be dried as well as possible and burned in the stove or furnace.

16. Appointment of M.O.H.

This officer should be appointed by By-law at a stated salary, which the Act says must be a reasonable salary. Sections 37-39. He cannot be dismissed except for cause and with the approval of the Provincial Board.

By a decision of Mr. Justice Lennox, the M.O.H. of 1912, unless appointed by the Council of 1913, does not retain office, but the properly appointed officer of 1913 continues in office subject to terms of Section 37.

18. In a garnishee action now pending between the Local Board of Health, plaintiff, and one Reid, a lumberman, defendant, where payment is demanded by the Local Board for cleaning up the nuisance perpetrated by Reid in his lumber camp, counsel for defendant claims that in such an action the Local Board of Health non esse: that action must be taken by the municipality. Kindly rule.

Answer—Council must take action. Section 58, (1) and (2).

19. Is it advisable to compel all farmers in back country townships to clean out wells annually, where the townships are not very wealthy and find it hard to carry out the Act?

Answer—Advise that all wells be cleaned out. Don't attempt too arbitary measures. Educate the public and they will soon see the benefit.

Book Reviews

Every physician will make, and ought to make, observations from his own experience; but he will be able to make a better judgment and juster observations by comparing what he reads and what he sees together. It is neither an affront to any man's understanding nor a cramp to his genius, to say that both the one and the other may be usefully employed, and happily improved in searching and examining into the opinions and methods of those who lived before him, especially considering that no one is tied up from judging for himself, or obliged to give in to the notions of any author, any further than he finds them agreeable to reason and reducible to practice. No one, therefore, need fear that his natural sagacity, whatever it is, should be perplexed or misled by reading. For there is as large and fruitful a field for sagacity and good judgment to display themselves in by distinguishing between one author and another, and sometimes between the several parts and passages in the same author, as is to be found in the greatest extent and variety of practice. . . . . It has not usually been looked upon as an extraordinary mark of wisdom for a man to think himself too wise to be taught; and yet this seems to be the case of those who rely wholly upon their own experience, and despise all teachers but themselves.

FRIEND. History of Physic. Vol. 1.

Safeguarding the Special Senses.

The eye, the ear, the nose, the throat are special senses because of their specially delicate mechanisms, and because they play such an important part in the happiness of mankind. Destroy or impair any one of them and by a very great deal is man's life made less happy, although it may not be shortened one iota. Two quotations from the preface to this little volume will show what it is intended to be. "It is probably safe to say that 50 per cent. of the practice of specialists is made up of efforts to correct conditions that should never have been permitted to exist. They are constantly crying to the family physician and to the public that prevention is not only cheaper but easier and better than cure; that proper care of the eyes in early life prevents the onset of cataracts and other intraocular diseases in old age, that the removal of bad tonsils and adenoid growths permits the child to develop normally and insures against certain affections of the ear and of the respiratory tract, that proper attention to colds in the head and early treatment of running ears would wipe out 80 per cent. of the cases of brain abscess and purulent meningitis. It is with the idea of presenting in one small volume at a price low enough to bring it within reach of all who desire information on the subject, such simple facts and suggestions relating to the care of the eye, ear, nose and throat as will enable reasonably intelligent persons to keep those organs healthy and to recognize evidences of abnormality therein, so that they may promptly seek safe advice for cure, that the author has undertaken the task of writing this little book." It would be well if all parents would study this little volume.

SAFEGUARDING THE SPECIAL SENSES. General Advice Regarding the Use and Preservation of the Eyes, Ears, Nose and Throat. By Henry O. Reik, M.D., formerly Associate in Opthalmonology and Otology in the Johns Hopkins University and Surgeon in the Baltimore Eye, Ear and Throat Hospital, Baltimore, Maryland. Price, 75c net. F. A. Davis Company, publishers, Philadelphia.

Food and Feeding in Health and Disease.

Books on dieteties often make very dry reading, and, after wading through pages of dry details, the physician or nurse or dietician finds it difficult to glean any

knowledge that can be placed easily to practical account. It is not so with this book, written by Dr. Chalmers Watson, of Edinburgh. Every page of it is written in readable style and every division of it is filled with practical hints on this most important subject of food. This work is based upon a thorough knowledge of the physiology of digestion, the nature of foods the normal laws of feeding, as well as in the deviation by which the action of these laws is modified. Dr. Watson must have had in mind the many, many times in practice when the medical man finds himself face to face with the problem of what food to give and sometimes the greater problem of how to prepare it. With this book at his elbow the physician is well able to plan in the best way to satisfy the claims of the occupant of the sick bed in those times of stress and anxiety when the palate and the stomach of the patient need to be minutely studied. This is a most valuable contribution to the literature of dietetics.

FOOD AND FEEDING IN HEALTH AND DISEASE. A Manual of Practical Dietetics. By Chalmers Watson, M.D., F.R.C., P.E., Assistant Physician Royal Infirmary, Edinburgh, Editor of the "Encyclopaedia Medica." Price, $5.00. D. T. McAinsh & Co., publishers. 4-12 College Street, Toronto.

Studies in the Psychology of Sex.

This is the general subject upon which Havelock Ellis has written six large volumes. The one before us now is called "Sex in Relation to Society." There can be no shadow of a doubt that Society and the Sex Problem are intimately associated, and it is also a fact that very few people, and for that matter very few of the members of the medical profession understand this subject as it ought to be known. Too much and too often in the past has this great subject been taboo, but the world is coming to realize more and more that the sexual life is a very important part of the physical life, and that it is wiser to have a thorough knowledge of the psychology of sex and know how to meet the difficulties and problems pertaining thereto than to allow society to proceed unwittingly into errors with all their attending evils. The evils surrounding the sexual, love darkness rather than light, and when the light of knowledge is thrown upon this most important division of medical science so that he who runs may read, many of these evils will flee away. Havelock Ellis is a recognized authority on the sexual problem, and he is a safe guide to those who would pursue this subject and learn its mysteries. It would be splendid if everyone could read this book, but at least it should be studied thoroughly by the members of the medical profession, who are the natural guides and instructors of the people in all matters of this kind.

SEX IN RELATION TO SOCIETY. By Havelock Ellis, L.S.A. (Eng.), Fellow of the Medico Legal Society of New York; General Editor of the Contemporary Science Series. Crown Octavo, 656 pages. Extra cloth, $3.00 net. F. A. Davis Company, publishers. 1914. 16 Cherry Street, Philadelphia.

A man who knows how and when to listen, is not only open to increase his store of knowledge, but will often receive credit for wisdom he does not really possess.

Meetings and Reports

Third Annual Congress, Regina, Sask., Sept. 18, 19, 20, 1913.

Convenors of Local Committees.

Local Arrangements.—Convenor, M. M. Seymour, M.D., Commissioner of Public Health; secretary, R. H. Murray, C.E., Engineer to the Bureau of Health, Regina.

Medical Health Officers.—Arthur Wilson, M.D., Regina.

Medical Inspectors of Schools.—W. E. Struthers, M.D., Toronto; W. A. Thomson, M.D., Regina.

Military Hygiene.—Major T. B. Richardson, C.A.M.C., Toronto; Capt. Harry Morell, C.A.M.C., Regina.

Veterinary Hygiene and Food Inspectors.—J. B. Hollingsworth, D.V.S., Ottawa; D. S. Tamblyn, D.V.S., Regina.

Sanitary Inspectors.—Thos. Watson, Provincial Sanitary Inspector, Regina.

Engineers and Architects.—L. A. Thornton, C.E., Regina.

Laboratory Workers.—Chas. H. Higgins, D.V.S., Ottawa; G. A. Charlton, M.D., Regina.

Social Workers.—Rev. W. W. Andrews, LL.D., Regina.

Papers.—M. M. Seymour, M.D., Regina.

Reception Arrangements.—M. R. Bow, M.D., Regina.

Local Ladies.—Mrs. R. Martin, Regina.

Transportation.—B. F. O'Toole, Bureau of Public Health, Regina.

Local Executive Committee.—Chairman, M. M. Seymour, M.D., Regina; M. R. Bow, M.D., Regina; Harry Morell, M.D., Regina; secretary, R. H. Murray, C.E., Regina.

Apart from the actual business of the convention, there will be a public meeting for the first evening. The committee intend to make this a special feature of the programme, and are endeavoring to secure speakers of world-wide reputation. The social entertainment of the guests will include the annual dinner of the association, a reception by the Provincial Government, a garden party and an excursion to Fort Qu'Appelle by special train, where the visitors will have an opportunity of inspecting the new sanatorium buildings in course of construction and enjoying the scenery of the Qu'Appelle lakes. For Qu'Appelle is Saskatchewan's summer resort, and is situated in the Qu'Appelle Valley, about fifty miles from Regina.

The programme of papers promises to be an exceptionallly strong one, and the local committee are confident that the Regina Congress will come up to the standard of the two previous meetings.

National Association for the Prevention of Infant Mortality and for the Welfare of Infancy.

Under the patronage of their Majesties the King and Queen, an English-speaking Conference on Infant Mortality, will be held at the Caxton Hall, Westminster, London, England, on Monday and T day, August 4th and 5th, 1913.

Membership in the Fourth International Congress on School Hygiene.

1. Regular membership in Congress costs five dollars, and entitles the holder to admission to all departments of the Congress; gives him the right to vote; secures rebate concessions on certain railroads, and secures for him the published proceedings of the Congress.

2. Associate membership costs two dollars and a half, and entitles the holder to admission to the various departments of the Congress, and to railroad rates, but does not secure him the right to vote nor the possession of the published proceedings.

THOMAS A. STOREY,
College of the City of New York, New York City, U.S.A.

Many Public Health Officers on the Programme of the Buffalo School Hygiene Congress.

New York, June 28—(Special).

Public health officers will occupy a prominent place on the programme of the Fourth International Congress on School Hygiene, which is to be held at Buffalo the last week in August. In all some 50 of these public officials will discuss various phases of school hygiene work from the point of view of medical, hygienic and sanitary inspection.

Official Washington will be represented by Commissioner of Education, Dr. Philander P. Claxton; Surgeon-General Chas. F. Stokes, Chief Bureau of Medicine and Surgery; Dr. John F. Anderson, of the Public Health and Marine Hospital Service; Sanitary Engineer George H. Shaw, Bureau of Animal Industry, United States Department of Agriculture; Dr. Emil Krulish, Public Health Service; Dr. John R. Mohler, Chief Pathological Division, Bureau of Animal Industry; B. H. Rawl, Chief Dairy Division, Bureau of Animal Industry; Dr. A. D. Melvin, Chief Bureau of Animal Industry; Dr. A. J. McLaughlin, International Joint Commission.

Topics to be taken up for discussion will include: The Organization of Health Departments in Schools; the Relationship of the School to the Board of Health; the Equipment, Training, and Compensation of School Physicians; Schoo l Nurses; School Clinics; Relation of Health Supervision in the Schools to the Practice of the Physician, the Dentist, and the Hospital; the Relation of Medical and Hygienic Supervision in the Schools to Health Supervision in the Home; Sanitary Supervision of School Rooms, Locker Rooms, Swimming Pools, School Books, and School Furniture; Supervision of Disease Carriers; Prevention of Epidemics; Follow Up Methods and Results; Medical Inspection and Treatment.

Over 300 Speakers on the Programme of Hygiene Congress.

There will be over 300 speakers at the Fourth International Congress on School Hygiene, which meets in Buffalo, Aug. 25.

New Zealand will be represented by a number of leading educators, physicians, and scientists.

The problems of the village school and of the rural districts will be given special attention on the programme.

Fifteen national associations interested in health problems are now arranging special symposiums for the Buffalo meeting.

The Boy Scouts of Buffalo are now getting ready for the Congress. They will act as official guides and official interpreters.

Dr. Thomas A. Storey, of the College of the City of New York, Secretary-General of the Congress, has received a letter from State Chairman Malone Duggan, of San Antonio, Texas, calling attention to the active interest now being taken by various Texas organizations in the forthcoming Congress.

Under the direction of Walter E. Ranger, of Providence, Commissioner of Public Schools for the State of Rhode Island, a permanent committee has been formed for the purpose of improving the health and efficiency of school children in that state. Commissioner Ranger is Chairman of the Rhode Island Organizing Committee of the Fourth International Congress.

Dr. Fletcher B. Dresslar, of the United States Bureau of Education is assembling a summary of the most important facts on school hygiene brought out in the recent literature of the world. These facts are being furnished by the authors themselves. The final produce will be presented in the form of an exhibit at Buffalo.

Mrs. S. S. Crockett, Chairman of the Public Health Department of the General Federation of Women's Clubs, has written a letter to the various clubs of the country, calling attention to the opportunity open to the club women of America in helping to improve the health conditions of school children. Mrs. Crockett is the head of the Women's Committee, which is actively working for the success of the Fourth International Congress on School Hygiene.

Superintendent J. W. Brister, of the Department of Public Instruction for the State of Tennessee, in writing a letter to the public school officials and teachers of his state, refers to the Buffalo Congress in the following terms: "This is one of the most important educational gatherings which has ever been held, and is the

first session of this Congress in America. It deals with a subject of vital importance not only to school people, but to all people. The health of school children is receiving more attention than formerly, but certainly not as much as it deserves; and it is hoped that this Congress will stimulate interest in it to such an extent that increasing attention and thought may be directed to it. I am especially desirous that our state shall be represented at the Congress, and I should be glad if you can make arrangements to attend."

Special Session for Women to be Held at Buffalo.

"Women's Work in School Hygiene" will be the subject of a special conference at the Fourth International Congress on School Hygiene in Buffalo, the last week in August, under the auspices of the General Federation of Women's Clubs of America. The details of the meeting are now being arranged by Mrs. S. S. Crockett, of Nashville, Tennessee, Chairman of the Public Health Department of the General Federation.

Mrs. Frank J. Shuler, of Buffalo, President of the New York State Federation of Women's Clubs, will preside at the Women's Club session. The programme as now arranged by Mrs. Crockett will include the following:

1. A symposium on "What Clubs of women Can Do in School Hygiene," to be discussed by the following: (a) A representative school man; (b) A leading club woman; (c) An interested layman.

2. "A story on Actual Achievement," two-minute word pictures of actual cooperation by club women, to be presented by representative women from many states.

3. What Shall We Do About It?" three-minute prophecies of what women's organizations will do in school hygiene before the next International Congress on School Hygiene.

Letters received by Mrs. Crockett show the women's clubs of America are now playing a very important part in calling attention to the serious importance of the Buffalo Congress. The Congress is open to all interested in improving the health and efficiency of school children.

Rules for Mental Hygiene.

The Massachusetts Society for Mental Hygiene, which held a very successful conference in Boston, March 31 to April 4, printed in connection with its announcement of the meetings, the following excellent suggestions for the protection of mental health:

Only the mentally and physically fit should beget and bear children.

The marriage of closely related persons should be avoided.

Children of grossly intemperate parents are liable to be imbecile or epileptic, and many inherit a nervous system unable to cope successfully with the conditions of our complex civilization.

Children of feeble-minded, imbecile, or epliptic parents are liable to be feeble-minded, imbecile or epileptic—almost certainly, if both parents are defective.

Children of parents, one of whom is or has been insane, are liable to inherit a constitution that tends to insanity; and may, though apparently normal, transmit to their children this predisposition; the liability is greater if both parents are or have been thus affected.

Train your child to thorough cleanliness both of mind and body. Bad companions as well as common towels, common drinking cups, and the like should be avoided because there is danger of contagion, both physical and mental.

Give your child a variety of well cooked wholesome food, in ample quantity, at regular intervals.

Train your child to healthful habits of sleep in fresh air, giving opportunity for at least nine hours, and for more than that before the age of 12.

Avoid conditions that tend to produce overstrain or precocity. The special business of a young child is to grow and to play with other children.

Give your child opportunity for a variety of wholesome activities and interests.

Train your child to work hard in some regular occupation suited to his ability and talents, but to avoid extreme fatigue by alternation of work and rest.

Train your child to give attention to the present situation and not to worry about the past or the future.

Train your child to strict obedience in a few important matters, and let him alone in regard to other things.

Train your child to avoid drugs and stimulants of all kinds.

Protect your child from shocks. Do not frighten him yourself or let other people do so.

If your child becomes worried and sleepless, or has muscular twitching or the like, consult a competent physician at once.

The best method of training is example; and what is good for your child is usually good for you.

Take advice of a competent person concerning the peculiar, sensitive or nervous child, in order to correct a possibly bad inheritance by proper education and environment.

The intemperate use of alcohol is a contributing or causative factor of several forms of insanity in the individual predisposed thereto.

The habitual use of the habit-forming drugs, especially those of the sedative and hynotic type, may cause delirium or insanity.

Remembering that syphilis, typhoid fever, scarlet fever, measles, tuberculois, influenza, heart, kidney, and other diseases are not infrequently contributing factors in insanity or mental and nervous breakdown, it behooves you to see that the health regulations of your health community are kept abreast of modern standards of efficiency and to seek early a physician's advice when illness invades your home.

A contagious and infectious germ disease known as syphilis is the direct cause of three kinds of brain disease, which represents at least one-tenth of the admissions to insane hospitals.

Most of them are characterized by a progressive failure of mind and body, which ends in death in a few years.

Syphilis has other ill effects on the individual, and may be transmitted to the next generation. Most cases of insanity caused by syphilis are incurable by any means now known to medical science.

Do not allow diffidence or similar feelings to prevent you from promptly seeking competent medical advice concerning sexual, ethical, emotional, or mental problems which perplex you.

Remember that the mental equilibrium of many persons is endangered by the high pressure of our twentieth century civilization. Be thoughtful of them.

Try to get a little recreation every day, and a vacation oftener than once a year.

Try to keep your weight up to that regarded as "standard" for your height.

Cultivate a cheerful, generous, and charitable disposition.

There are many forms of insanity; a large percentage is preventable, and a considerable proportion curable.

Observe the few well-established and simple rules of health concerning food, sleep, exercise, bathing, and recreation. Avoid alcohol, drugs, immoral living, veneral diseases, great mental or physical stress, and excesses of all kinds.

Be temperate in all things.

An index of the remarkable growth of the anti-tuberculosis movement in the United States is given in a pamphlet published to-day by the National Association for the Study and Prevention of Tuberculosis, which shows that the number of agencies engaged in the fight against consumption in the United States numbered over 2,500 on May 1st, 1913, as contrasted to about 1,500 two years ago, a gain of 50 per cent.

The pamphlet is a supplement to the Tuberculosis Directory issued by the National Association in April, 1911. The supplement contains a list of all agencies established since that date, nearly 1,000 in all. The growth of some of the principal forms of anti-tuberculosis activity is summarized in the following table:

Established.	Associations.	Sanatoria and Hospitals.	Dispensaries.	Open Air Schls.
Before 1905	19	115	18	..
During 1905	15	19	6	..
During 1906	18	16	14	..
During 1907	46	30	45	1
During 1908	109	46	119	2
During 1909	169	68	59	10
During 1910	122	72	63	17
During 1911	312	61	34	57
During 1912	293	42	25	55
To May 1st, 1913	125	58	12	35
	1228	527	395	177

Forecast and Review

HINTS FOR THE HOLIDAY

The mosquito is one of the pests present in greater or less number, at practically every summer resort. In Canada the mosquito does not carry the germs of malaria, yellow fever, and other diseases as it does in tropical countries, but it is a great source of annoyance and productive of much profanity, said or unsaid. The adult mosquito may be carried considerable distances by winds, but on its own wings seldom travels more than half a mile from its breeding place.

Mosquitoes breed in water only, preferably warm, stagnant water, and any collection of water will do. They may be found in eave troughs, rain barrels, old tomato cans, bottles, broken crockery, ditches, and puddles, but they usually prefer grass-bordered pools and ditches. In general, their food consists of vegetable juices, but, unfortunately, the female has a well-developed taste for blood, because this is essential for the full development of her eggs. In from a day to two weeks after the feed of blood she lays her eggs on the water singly or in raft-like masses. These hatch out in a day or two into parvae or "wiggle tails," which have to come to the surface every minute or so to breathe. After about a week the larva changes into the pupa stage, and after two or three days the full-fledged mosquito emerges.

To get rid of the mosquito clean up all collections of water where mosquitoes can breed. Many places can be filled in and others drained.

Small fish feed on the larvae, and shores should be kept clean of weeds so that small fish can get at these larvae readily. Other pools and ponds which cannot be drained should be sprayed with kerosene, which prevents the larvae from breathing, and results in their death. Oiling should be repeated at weekly intervals until the mosquito season is pretty well over.

Flies are another source of annoyance in summer, and probably even one of danger. In summer resorts, sanitary conditions around hotels and boarding houses are very unsatisfactory, and flies have often direct access to both filth and food, and transfer one to the other. Make a point of investigating conditions in the kitchen of the summer hotel you propose to stay at, and see what their sanitary arrangements are. If a few people would do this in every place taking tourists, we would soon find that these places would improve wonderfully, because they have to consider their guests, they are their source of revenue. Many convalescents go to summer resorts, and it is easy to see how, by carelessness or inattention to sanitation, the germs from a typhoid phoid patient, for instance, may by means of flies be conveyed directly to others in the same place.

Flies breed in filth and garbage; if this is not present they cannot breed. The solution, therefore, is to burn every bit of garbage, and not to have a garbage heap near the place at all.

At your summer cottage or hotel show an interest in the milk supply and ask questions about it. The very fact that you are interested enough to ask will often result in better and cleaner milk. We know, because we have tried it.

Do not use or allow your children to use the common drinking cup on trains or boats; in fact, they will usually be much better off to do without the water supplied in such places at all. Nobody knows where these water supplies come from or who handled them.

Frequently boats pump their drinking water from the lakes they run through, and which are usually polluted with sewage. Train tanks are filled up at certain points, but the methods of handling are sufficient to condemn them. The writer has seen a grown person whom he knew to have tuberculosis drink from a

train cup, and a child five years of age drink from it a minute later. In all probability that child received fresh tubercle bacilli into its body.

Carry your own supply of water or lemonade and your own collapsible drinking cup or a supply of paper cups.

Poison ivy is a low, shrubby plant with a leaf somewhat like Virginia creeper, except that it is three-lobed instead of five-lobed.

The plant secretes an oil which is exceedingly irritating to the skin of many people and causes all the poisonous effects. The best way to get rid of the trouble is to wash the hands or parts which have come into contact with the poison ivy with ordinary strong yellow kitchen soap and water. Then apply the crushed-up plant called jewel weed to the parts affected. The jewel weed is a bright green, very juicy-stemmed plant, which grows to a height of four feet or even more, in low, wet places, and has an orange-colored hanging flower shaped somewhat like a curved cow's horn, and with brown spots on it. This is the most efficacious remedy.

Another remedy frequently found to be valuable is the application of sugar of lead (poison).

Sometimes the irritant poison will cling to clothing for weeks, so that when this is used again later on the symptoms may again develop, though the person may be miles away from the original source.

Poison ivy spreads by suckers, and the only way to get rid of it is to grub out the young plants as they appear.

Sunburn.—There is a great temptation to get well sunburnt when on a vacation, and nothing certainly is more becoming to the summer boy or girl than a coat of tan. But most boys want to get the coat all at once, with the result that frequently they pass a couple of wretched, sleepless nights, with face, neck, and arms covered with cold cream; and then the skin peels off anyway. The best way to get properly tanned is to keep out of the sun except for an hour or two the first day, and gradually increase the amount until about the fourth day any amount of sunshine can be withstood. You will be in better all-round shape, too, because you probably have taken more rest and less vigorous exercise than would have otherwise been the case.

Springs.—In regions like Muskoka, where there is very little sand and earth, water, which collects in swamps and hollows in the rocks may flow away slowly through crevices or through the thin layers of soil and re-appear at the edge of a cliff or lake as a sparkling "spring." When rain, perhaps badly contaminated by surface washings, sinks into thick layers of earth and sand, the bacteria and dirt which are present are filtered out and the organic matter in solution is destroyed. The purified water then sinks in until it strikes some impervious clay or rock, along which it flows until it reappears at some lower point as a spring, or perhaps it is tapped by a well. The latter is nature's method of purifying water. In districts like Muskoka and Stoney Lake nature's agencies for purifying the water, such as earth and sand, are usually absent. Consequently contamination is not readily removed, and instead of becoming purer, the source of supply may become more and more polluted as it passes onward. Many outbreaks of typhoid and dysentery are due to such contaminated springs. Do not trust them because they look clear and bright: You cannot judge the safety of a water by it s appearance. Until you are satisfied by bacteriological examination and inspection of the source of origin that the water is safe, go on the assumption that it is not safe, and boil it or chlorinate it.

A simple method of pasteurizing milk in the home.

The milk to be pasteurized should be placed in the inner container of a double boiler, a thermometer suspended in the milk, and the temperature of the water in the outer boiler raised until the thermometer in the milk registers 140 degrees to 145 degree F., for about 20 minutes, and then immediately cooled and kept cold until used.

Scalding milk is the old method of achieving the same result. In this case, however, an objectionable scum forms on the surface, the milk develops a decidedly cooked taste, and it is considered to be less digestible.

All pasteurized milk should be consumed within 24 hours.

Babies' bottles and nipples should be thoroughly washed with cold water or soda solution, then boiled and kept in a clean place until ready for use. A dirty bottle may give your baby such a tremendous number of bacteria that severe illness and perhaps death will ensue. If you have ever had so-called ptomaine poisoning from eating bad fish you have some idea of what a proper culture of bacteria is capable of doing; the bad milk has exactly the same effect on the delicate, sensitive organism of the baby.

Protect your baby's food and milk supply even if you are not so particular about your own; the baby has a far more sensitive alimentary tract than you have. You may be a long way from a doctor in case of illness—Health Bulletin, Toronto.

Summer Outings.

The season of the year has now arrived when people begin to think of getting out into the open air for the summer and away from the dust and heat of the city. Many will go to the Lake of the Woods; many will go to Lake Winnipeg; some will have to be content with camping or summer cottaging along the Red or Assiniboine Rivers. There is probably nothing better for the children than the summer months spent outdoors; it also puts new life and energy into the grown-ups.

There are, however, certain points about these outings that should never be lost sight of. It is rather curious modern anomaly that certain diseases —notably typhoid fever—are more prevalent in the country districts than in up-to-date cities. It is important that persons going away for the summer bear this in mind and take precautions accordingly. If you have a camp or a cottage, look well to the water supply. If this be from a lake or river it is better to boil the water before drinking it, unless the country round about is uninhabited or nearly so. If the water is obtained from a well, look to the surroundings; observe if privies, cesspools or manure heaps are situated in the vicinity; if so, boil the water. Always be suspicious of the old-fashioned well with brick walls and the bucket for lowering into the water. A well of this type is very much more likely to become contaminated by extraneous matters than the bored or driven well with iron piping and surrounded by concrete or cement above the level of the ground.

Be particular about the milk supply. Do not be satisfied until you have actually seen the dairy and observed the methods pursued before, after, and during milking. Beware of the dairyman who washes his hands after milking and not before. Beware of the dairyman with dirty cows, dirty premises, and who does not handle his milk after it is drawn in a cleanly manner, and who does not cool it promptly and keep it cool. Milk produced under the foregoing conditions should either be boiled or discarded altogether. Do not buy any food supplies from dirty, unscreened stores.

It is important that garbage and refuse be not allowed to accumulate in the vicinity of the summer home. Burn or bury this, or keep it in covered receptacles. If this is done a great difference will be noted in the number of flies about the premises. Pay particular attention to the outhouse. Have this so constructed that its contents will be inaccessible to flies or animals. Be very particular about having the outhouse well screened, and use disinfectants with a lavish hand.

Always have the cottage or tent screened; this will increase your comfort, lessen the chances of the food supply becoming infected by flies, dust, or other carriers of disease.

People who have not a summer home of their own, but who live at summer hotels or boarding houses, should take certain precautions. The kitchen is one of the most important parts of these institutions, and it is well to have a look at this. If it is dirty and unscreened, a change is advisable. Inquiry should be made about the water supply and milk supply, and a personal inspection made of the sources of these. Have a look at the outhouses and methods of refuse disposal. If these are improper and the landlord shows no disposition to improve things, move elsewhere.

Those who go on motor trips through the country should bear in mind the points mentioned. It is often better to take enough pure water along for drink-

ing purposes while on short trips than to trust to doubtful supplies.

It is now possible to render an individual immune for several years to typhoid by the use of anti-typhoid vaccination. This is a simple and safe procedure of recognized efficacy and has been employed with gratifying results hundreds of thousands of times.

It is particularly useful in case of travellers or those who may be exposed to typhoid infection. In fact, it is the only absolute means of prevention. This department will be pleased to furnish any person with further particulars, and can arrange for the administration of the prophylactic if so desired.

If everyone going out of the city for the summer would heed the foregoing suggestions, we are satisfied that there would be very little disease contracted while away. Every year in the past we have had a number of cases of summer resort typhoid, with an occasional fatality, practically all of which could have been prevented. An attack of typhoid is a sad termination for a holiday. It may endanger other members of the household through spread from the original case and may become the starting point of an outbreak in the city after the patient's return.

A Few Hints on First Aid.

Fainting Fits—Fainting fits may be caused by overexertion in hot weather or heated rooms or by getting into the upright position when weak from disease, etc. A fainting fit is distinguished by the patient falling down in a helpless condition, generally insensible without convulsions. The face and lips are pale and the surface of the body cold, often covered with a clammy perspiration.

Treatment—Lay the patient on his back with his head low, and loosen the clothes about the neck and chest. Sprinkle cold water on the face and neck. Apply smelling salts to the nose, and when the patient is able to swallow administer stimulants in very small quantities. (Spt. Ammon. Aromat.) Fresh air is a necessity. If haemorrhage be the cause it must be arrested immediately and stimulants should not be given without a doctor's authority. Leave the patient lying down for some time after recovery.

Apoplectic Fits—Apoplectic fits mostly occur in elderly persons. The patient falls suddenly insensible, the face is red, the breathing loud and snoring, and the pupils frequently of unequal size.

Treatment—Raise and support the head and upper part of the chest. Loosen the clothes about the neck. Apply cold water to the head. Do not give stimulants.

Epileptic Fits—Epileptic fits are due to constitutional or local causes. The patient falls down insensible and has convulsions affecting part or the whole of the body, froths at the mouth, and often bites the tongue, making it bleed. A fit may be divided in three stages:

1st Stage—This is often commenced by a peculiar cry. The patient falls down quite unconscious. He becomes rigid all over, every muscle being contracted. He holds his breath, his face becomes pale and then livid. This stage lasts from 30 to 40 seconds.

2nd Stage—Unconsciousness continues, but instead of rigidity, convulsions come on, the eyes roll, the tongue may be bitten. This stage may last from one to four minutes and pass slowly into the

3rd Stage—Consciousness is gradually regained. The muscular spasms cease, the patient gradually comes to himself, but is very exhausted and confused mentally. He then frequently sleeps for some hours.

Treatment—Lay the patient on his back with the head slightly raised. Loosen the clothes about the neck and chest, and prevent him from biting his tongue by placing something between his teeth, such as a piece of wood as a gag. Employ only sufficient restraint to prevent his injuring himself and avoid pressing on the chest. It will be sufficient if one man restrains the patient's legs—kneeling by his right side and placing the right arm across the knees to do so, a second lightly restrains the patient's right arm, and a third the left arm and also watches the head. Treatment will not cut short an epileptic fit.—Winnipeg's Health Bulletin.

That Mud Pie.

"You prick it, and pat it; and mark it with B; turn on the microscope, then you will see" in your mud pie vast numbers of micro-organisms, including measles, 2,450,000; and smallpox, 900,000. This is the modern French bacteriological ver-

sion, according to one of the leading dailies on the word of their Paris correspondent, of the Pat-a-cake rhyme of our nursery days. "And," as a leading music hall light would say, "very nice, too." But what worries me is the smallness, comparatively, of the numbers of smallpox and measles germs, more especially smallpox. You see, we have all been searching for these two germs so long, and have never yet really been able to find them, that I am certain every bacteriologist in the world will want a handful or so. Having regard to the fact that there must be hundreds of bacteriologists in the world's laboratories, many of them quite up to the examiner of mud standard, 900,000 smallpox and even 2,450,000 measles germs will not go very far. It does seem a pity; but perhaps the mud of Lyons may, if further examined, yield a few more, perhaps sufficient to go round. —An M.O.H. in Sanitary Record.

The Household Storage of Food.

Far too little attention is paid in the construction of houses for the working classes to the question of providing a suitable pantry or place in which to store food. Frequently all that is considered necessary is a small cupboard under the stairs or in some place which is quite incapable of being ventilated, or which is so dark that it is rendered extremely difficult to keep clean. We are glad to be able to record that the London County Council has obtained powers to require in new tenement houses in London that there shall be a grate suitable for cooking and facilities for the proper storage of food. These requirements should not be confined to the Metropolis, but should be made to apply to the whole country, and it is gratifying to know that the National Food Reform Association has received promises from a large number of members of the present House of Commons to support legislation with these requirements in view.—National Health.

Trees in Public Thoroughfares.

It is gratifying to notice that local authorities are coming more and more to recognize that it is their duty to cultivate the amenities of a town or district. And for that purpose they have seen that it profits them to convert by the planting of trees bare and ugly thoroughfares into foliage-lined avenues under which pedestrians find it congenial to protect themselves from the heat of the summer sun, whilst they serve to mellow the asperities of the monotonous domestic architecture which prevails to-day. The "town planning fever" which has "caught on" with some of the larger municipalities has undoubtedly given the movement a fillip. But we are much behind our continental neighbors, and it rests with town and district councillors more aesthetically minded than their fellows to imbue the latter with similar views and to press for the planting of trees in all thoroughfares having a width of 40 feet or upwards, and to utilize waste nooks and corners by shrouding them with trees and shrubs, which if tended with ordinary supervision become things of beauty.—The Sanitary Record.

Dirty London.

London can hardly be called a manufacturing town, and yet the buildings that have been erected over twenty years might, from their appearance, be located in any of the great centers of industry. Much, however, is being done to remedy this state of things. The forty years of smoke, dirt, and heat of the old underground railway are now only memories of the past, and will soon be forgotten. It may be long before the Thames becomes again the limpid stream of yore, but the great greasy patches of sewage no longer offend the eye and the nose. It was said at the wreck of the Princess Alice, when 800 holiday folks met their death in the waters of the Thames opposite the Beckton gas works, that as many were poisoned by the foul water as were drowned. The present generation cannot realize, even if it were fully described to them, the foul state in which the roads of London were allowed to exist before the advent of the orderly bins. Occasionally a couple of men might be seen with brooms or scrapers, but there was no organized system, and it was a common condition fifty years ago to see three inches of mud and filth upon the surface of the carriageway. It is no exaggeration to say that at the present time the roadway is cleaner than the footpath was in those days. Many fine buildings are lost to London from

the cake of dirt enveloping them. Who, for example, of the younger generation suspected the existence of the noble front of the Cannon Street Hotel until it was recently cleaned and exposed to view. The only building that can claim to be improved in any way by the dirt is St. Paul's Cathedral, and while it must be admitted that the contrasts produced between the blackened and the weather-worn portions of the structure are somewhat artistic, that is not sufficient reason for allowing the general prevalence of dirty and smoke-begrimed buildings.—The Sanitary Record.

Proposed Federal Law in Regard to the Pollution of Navigable Streams.

There has recently been appointed at Ottawa a Commission comprised of eighteen members of Parliament for the purpose of enquiring into the pollution of Canadian sources of water supply. The appointments are the result of the introduction for a second reading of Mr. Bradbury's Bill to prevent pollution of streams as above.

That the Government should take means to be advised on the subject, and to frame legislation in connection with same, is admittedly a most desirable step. It has been brought out in the past on several occasions that even the water of our Great Lakes, which ordinarily one would not consider on account of their bulk to be in any probable danger of general pollution for years to come, contain considerable amounts of chlorine at far distant points from sources of contamination. Analyses show, for instance, that the amount of chlorine in the west end of Lake Ontario has increased two and a half times in thirty years, while in the easterly end the amount of chlorine has doubled in twenty years. This increase in chlorine indicates sewage pollution, which, if not stopped or minimized, will in time render even our Great Lakes unsafe for use as a public supply.

Consider the official figures, which show that the toll of death from typhoid in Canada is 35.5 per 100,000 of the population. In Germany it is only 7.6 and in England 11.2. Ottawa and Winnipeg are cities whose populations have suffered severely from epidemics of typhoid, due to the pollution of the Ottawa and Red Rivers, respectively. What they have gone through, other towns will have to combat with, unless steps are taken immediately to fortify with federal aid the sometimes inadequate and careless attempts of local municipalities to protect their water supply from dangerous contamination.

The ultimate aim of the Government in appointing the Commission is most admirable, but we cannot see that there is anything to be commended in their way of going about the work before them. The work in connection with this Commission could have been much more efficiently and rapidly carried through by the appointment of a much smaller commission composed of competent engineers and medical health officers rather than by an unwieldly body of non-engineering parliamentarians, whose appointment leaves a very probable opening for misunderstandings and mis-translations of engineering opinions and data given them. We cannot see any possible excuse, if efficiency is desired for such appointments. While this parliamentarian committee may wade through investigation to some beneficial and corrective legislation, they are, nevertheless, both on account of bulk of numbers and lack of training on the subject, unwieldy, slow and unfitted for the work.

It is time the Government was made to wake up to the fact that when reports and investigations are wanted on subjects relating to science, any ignoring of the professions concerned is dangerous to them, politically. The public should be made to understand the foolishness and unbusinesslike method of eighteen unscientific and wholly unqualified parliamentarians enquiring into a matter which could be much better done by those acquainted with the engineering and scientific sides of the problems involved.

The New Regulations Governing Employment Agencies.

His Excellency the Administrator in Council, under the authority of Section 66 of the Immigration Act of Canada, is pleased to make the following Regulations for the protection of immigrants seeking employment from companies, firms, or persons carrying on the business of intelligence offices, or employment or labor agencies in Canada, and the same are hereby made and established accordingly:

1. Every person, firm or company engaged in the business of an intelligence office, or employment or labor agency, and having business dealings with immigrants, shall first obtain a license for this purpose from the Superintendent of Immigration, Ottawa, which license shall be issued without fee upon the Superintendent being satisfied that the applicant is duly complying with the requirements of the Immigration Act and orders in council or regulations passed thereunder; the license, unless otherwise cancelled, shall remain in force for the calendar year during which it is issued, and shall be posted in a conspicuous place on the holder's premises.

2. Such license shall not be transferable, and shall be revocable on the written order of the Superintendent of Immigration, where the latter has been satisfied that the holder is not complying with the requirements of the Immigration Act, or of any orders in council or regulations passed thereunder.

3. The Superintendent of Immigration shall keep a register of all license holders hereunder.

4. No person, firm or company engaged in an intelligence office, or employment or labor agency business shall by advertisement, letter, poster, verbal communication or otherwise make false representations to any immigrant seeking employment as to opportunities, or conditions of employment, with any employer in Canada.

5. Every holder of a license under these regulations shall in books provided for that purpose keep the following records of his business, viz., the full name and address in Canada, and home addresses, if any elsewhere, of every immigrant with whom the holder has dealings; the port and date of the immigrant's arrival in Canada; the name of the steamship or railway by which the immigrant has come to Canada; the name and address of the immigrant's next of kin; together with the name and address of the employer for whom the immigrant is engaged; the nature of the work to be performed; the rate of wages to be paid, the rate of board, all deductions from wages, and other terms of engagement.

6. Such books of record shall be open at all times to inspection by any officer authorized for this purpose by the Superintendent of Immigration.

7. The employment fee chargeable by intelligence offices, employment or labor agencies for their services in securing employment for an immigrant shall not in any case exceed the sum of $1.00, and such fee shall be refunded in case the immigrant is unable immediately upon arrival at the place where the work was represented to be, to secure the promised employment at the wages and upon the terms represented at time of payment of fee.

8. No holder of a license under these regulations shall, in addition to the $1.00 fee above mentioned, charge to any immigrant for transportation to the point where employment is to commence, any sum more than the actual cost of such transportation.

9. No holder of a license under these regulations shall engage for any employer of labor, any immigrant, unless said holder of license has in his possession a written and dated order from the employer of labor setting forth specifically the number of men or women whom it is the employer's desire to engage, and which written order shall also state full particulars as to the nature of the work to be performed, the rate of wages to be paid, the rate of board, all deductions from wages and other terms of engagement.

10. Every holder of a license under these regulations shall keep on a fyle separate from other correspondence and numbered consecutively from one up, all orders for immigrant help from employers of labor which fyle shall be produced to any immigration officer requesting to see the same.

11. No holder of a license under these regulations shall engage for any employer of labor any immigrant, where the written order for help was given over two months before the filling thereof.

12. Every holder of a license under these regulations shall post in a conspicuous place on his premises any copy or synopsis of the regulations which may be provided for that purpose by the Superintendent of Immigration, which copy or synopsis may be in any language or language.

13. If any license holder shall be convicted of an indictable offence, his license

shall ipso facto be deemed to have been cancelled.

14. If the holder of a license hereunder fails to comply with any of the requirements of the foregoing regulations, he shall be liable on summary conviction to a penalty not exceeding $100.00, and in default of payment, to a term of imprisonment not exceeding three months.

(Signed) RODOLPHE BOUDREAU,
Clerk of the Privy Council.

Disadvantages of Chemically Pure Water as a Beverage.

Word comes of investigations carried on by a number of French naval surgeons into the use of chemically pure water as a drink, which may be of interest to some of our readers.

To make water chemically pure it has to be distilled, and the continued use of distilled water as a beverage reduces the strength of the physical organism, because, while it is free from all germs, it contains nothing but oxygen and hydrogen. The mineral salts are left behind during the process of distillation, and the mineral salts are really indispensable.

"As long as life persists in the body," these surgeons declare, "the elimination of mineral salts goes on, and this means the rapid demineralization of the organism."

Demineralization, it is explained, leaves one's system in such a state that the natural tendency is to become tubercular. It was found that there were numerous cases of tuberculosis among the young sailors of the French navy, and this was, after long investigation by the surgeons of the navy, attributed to the demineralization of the water.

The distilled water was used in the belief that it was best for the sailors, and the naval authorities were anxious to make every condition as healthy as possible. Just now the surgeons are studying the best means of treating the distilled water used aboard the ships with mineral matter. Of course, pure water is wanted, but as conditions are now it is held that ordinary drinking water would be even better than the chemically pure, if the latter was responsible for the increase of tuberculosis in the navy.

Few people continually drink chemically pure water, and for this reason the dangers could not well be learned until this discovery was made. There are a number of ways in which the germs in water may be eliminated and at the same time the mineral salts left in the fluid. Distilled water is scarcely palatable at the best, as it is these very necessary mineral salts that make it really palatable.

An effort is being made to provide further proof of the dangers of chemically pure water as maintained by the surgeons of the French navy by means of experiments on animals.

Resolution Adopted by the National Association, May 9, 1913.

"Whereas, widespread publicity has been given to the claims of an alleged cure for tuberculosis,

"Resolved, That there is no information before the National Association for the Study and Prevention of Tuberculosis to justify the belief that any specific cure for tuberculosis has been discovered which deserves the confidence of the medical profession or of the people, and,

"Resolved, That it is the duty of the public to continue unabated all the present well tried agencies for the treatment and prevention of tuberculosis."

When physicians desiring to sell their practice and property—one or both—and list the same with the Canadian Medical Exchange, 75 Yonge Street, conducted by W. E. Hamill, M.D., medical broker, they can rest assured that their offer will only be presented to registered bona fide buyers, who have bound themselves in writing as to secrecy, and not to offer opposition if they do not buy. Every legitimate safeguard possible is thrown about vendors, so that a sale is effected with a maximum amount of speed and a minimum amount of publicity. Eighteen years of experience in medical brokerage has evolved a system for selling medical practices as near perfection as possible, and a short cut to the goal desired is available to those interested. A request to the above address will secure full information as to details.